Virginia Commonwealth University
Proposed Organizational Change

Proposal

The Virginia Commonwealth University seeks approval to move the Post-Baccalaureate (Graduate) Certificate in Care Coordination from the Office of the Senior Vice President for Health Sciences to the School of Nursing Dean's Office.

Overview

The Post-Baccalaureate (Graduate) Certificate in Care Coordination was approved by the State Council of Higher Education for Virginia in February 2017. The purpose of the certificate program is to educate healthcare professionals in concepts and best practices of care coordination. Upon successful completion of the program, graduates are equipped to help patients and their families who are at risk for excess use of health care to navigate the complex interface among providers, insurers, governmental programs, and community based organizations.

While the certificate is an innovative academic program that provides important training for the future of healthcare. Enrollment has been low despite multiple efforts to attract and retain more students. Moving the certificate to the School of Nursing will allow that academic unit to align recruitment efforts with other ongoing recruitment efforts and provide more support services to the students. In addition, there may be opportunities to align other nursing offerings with certificate offerings, for example a track in care coordination for masters level students.

This proposed change was presented at the November 4, 2021 IPE Advisory Committee meeting which included leaders from College of Health Professions, Dentistry, Medicine, Nursing, Pharmacy, and Social Work. No concerns were indicated.

The Center for Interprofessional Education and Collaborative Care notified the Office of the Senior Vice President for Health Sciences, including Arthur Kellermann on October 21, 2021, and noted no concerns.

Method of Delivery

All courses required for the Post-Baccalaureate (Graduate) Certificate in Care Coordination are delivered in an online delivery format. This organizational change will have no impact on the method of delivery.

Target Implementation Date

July 1, 2022

Demand and Workforce Development

In large part due to the changing healthcare climate from the Affordable Care Act's (ACA) goal to reduce 30-day preventable hospital readmissions, care coordination has been recognized as a clear societal need in which healthcare professionals need to be better trained in best practices. The Agency for Healthcare Research and Quality (AHRQ) responded by proposing a set of care coordination measures to guide best recommended practices. To say care coordination is a challenging job is an understatement as care coordinators must solve a multitude of intensely complex barriers to patient care every day. Further proving the national support of the care coordination role, the Centers for Medicare and Medicaid Services (CMS) have recognized that care coordination is a critical component of primary care that will contribute to better health of patients and reduced spending. In a policy brief by the American Academy of Nursing's Care Coordination Task Force, the need for workforce development is clearly delineated as a specific recommendation to help improve sustainability of care coordination. This certificate program is structured to meet not only the recommendations of the AHRQ's Mechanisms for Achieving Care Coordination in the Care Coordination Measures Atlas, but also to provide the

successful graduate with practical exposure to how to facilitate safe and effective care transitions. Typically healthcare professionals are prepared for their role in care coordination by direct immersion with very little to no formal training, so this curriculum will allow students to have a measurable level of knowledge necessary to utilize effective care coordination strategies. Therefore, participants and employers will find certification appealing because it helps to identify them as experts in their field.

Impact on Existing Programs

No impact on existing programs. To date, all the certificate students have not been enrolled in other VCU degree programs. Since offering Post-Baccalaureate (Graduate) Certificate in Care Coordination courses independent of the program, a small but growing group of Master of Social Work students have enrolled.

This organizational change will have no impact on these courses nor the participating programs. The Center for Interprofessional Education and Collaborative Care offers non-certificate IPEC courses in which the following programs participate: BSN, PharmD, MD, DDS, DH, MHA, PT, OT, MPH.

The Council on Education for Public Health (CEPH) competency 21 requires an interprofessional course for all Master of Public Health (MPH) students. Currently, IPEC 501: Foundations in Interprofessional Practice is the required course. Due to its more advanced healthcare focus, IPEC 510 is used as an option for physicians enrolled in the MPH program to satisfy accreditation standards. Since 2018, 1-2 Doctor of Medicine (MD) students in the MPH program have enrolled into IPEC 510. Transferring this program to the School of Nursing has no impact on course content.

Master of Science (MS) degree program in Gerontology with a concentration in geriatric care management requires IPEC 516. Again, transferring this program to the School of Nursing has no impact on course content.

Impact on Faculty

The move will have no impact on faculty currently teaching in the program. The program director is full-time faculty in the School of Nursing and 0.2 FTE is currently paid by The Center for Interprofessional Education and Collaborative Care to oversee the certificate and teach two courses. The remainder of the faculty are adjuncts who were identified by the course director and hired and also paid by The Center for Interprofessional Education and Collaborative Care.

- Kimberly Davis (program director): IPEC 510 and 515: Interprofessional Communication and the Care Coordinator I and II
- Ross Airington: IPEC 511: US Healthcare and Care Coordination
- Bonita Hogue: IPEC 512: Healthcare Payment Models and Care Coordination
- Mark Robinson: IPEC 513: Ethical and Legal Consideration in Care Coordination
- Patricia Baker: IPEC 514: Hospital Based Care Coordination
- Angel Daniels: IPEC 516: Community-Based Care Coordination

Funding

The School of Nursing has the resources needed to sustain the certificate program. FY22 funding for five adjunct faculty and 0.2 FTE of the program director was $49,351, inclusive of respective FY22 fringe rates. The Center for Interprofessional Education and Collaborative Care established competitive adjunct faculty rates that meet current compensation requirements for adjunct faculty engaged in credit instruction (credit hour minimum for J00001 instructors). The Center for Interprofessional Education and Collaborative Care receives no tuition revenue from any of its offerings. Going forward, the tuition revenue for the certificate will be folded into the model for the School of Nursing and other Schools and Colleges. The School of Nursing has the resources to support faculty, administration, and recruitment/marketing.

Benefit to University

The Care Coordination Certificate meets the mission and goals set forth in VCU's *Quest 2025: Together We Transform*, such as support for real-world learning (e.g. Capstone Projects), interdisciplinary collaborations, and workforce development that seeks to solve complex needs in healthcare.

State Council of Higher Education for Virginia (SCHEV) approval is not required

Next Steps

March 1:	Program and Courses Deadline
March 22:	Programs and Courses Meeting
April 5:	University Graduate Council Meeting
April 28:	University Council Subcommittee on Academic Affairs and University Policies Meeting
*May 5:	University Council Meeting
*May 2:	President's Cabinet Meeting
May 13:	Board of Visitors

*Proposals may be presented at the President's Cabinet meeting prior to the University Council to facilitate Board of Visitors review and approval.

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Description of the Proposed Program

Program Background

Virginia Commonwealth University seeks approval to establish a Bachelor of Fine Arts (BFA) degree program in Emerging Media and Technology at the School of the Arts campus in Doha, Qatar (VCUArts Qatar). The proposed program will be administered by the Dean's Office in the School of the Arts in Qatar. The target date of the program's initiation is the fall semester of 2023.

The proposed program aims to shape a curriculum that provides a balance between a fine art and a design practice in the fields of emerging media and technology. The proposed program offers students a broad curriculum for arts and design in digital fluency and information, and communication and technology literacy skills that encompass a range of competencies from related science, technology, engineering, and mathematics fields. Students will learn concepts such as immersive technology, computation, artificial intelligence, game design, and data-driven design to facilitate the acquisition of the transversal skills necessary for graduating students to be competitive in the job market in the creative industries projected for the near future[1]. Globally, the creative industry has grown significantly to engage in new fields involving emerging media and technologies in what has been described as the Fourth Industrial Revolution[2], or Industry 4.0[3]. This evolution has been extensively analyzed in the literature and is well evidenced by the growth of emerging media industries in Doha, Qatar and the Gulf Corporation Countries (GCC).

For instance, in a recent study relative to Middle East and North Africa (MENA) region, digital entertainment led by Over The Top (OTT) video ('over the top' or streamed video services such as Netflix, Shahid and Starzplay), found that gaming and digital music will grow at an accelerated pace to 2024. Digital revenues are expected to make up 42% of total entertainment and media revenue in the MENA region in 2020, up from 37% last year, and then to grow steadily to reach 46% of revenues by 2024. Globally, digital spending will account for the majority of revenue for the first time this year, reaching 51% of total revenue.[4]

The purpose of the proposed BFA degree program in Emerging Media and Technology is to prepare students to work as designers and artists within a spectrum of correlated emerging media and technology fields. Students will learn to use a variety of tools and technologies relevant to innovative and emerging media practices of various types (e.g., multimedia art and design software, digital sound editing tools, game development platforms, etc.). The program will

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[1] Littmann, Dan, et. al. *5G: The chance to lead for a decade*. Deloitte, 2018, p.2. https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-5g-deployment-imperative.pdf

[2] Schwab, Klaus. *The Fourth Industrial Revolution: what it means, how to respond.* World Economic Forum, 14 January, 2016, https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond.

[3] Popkova, Elena, et. al. *Industry 4.0: Industrial revolution of the 21st century*. Cham, Switzerland: Springer International Publishing, 2019, p. 5.

[4] MENA Entertainment & Media Outlook 2020-2024. https://www.pwc.com/m1/en/publications/mena-entertainment-media-outlook-2020-2024.html

provide students with a foundation in the theory and history of digital media art and design, enabling graduates to engage in critical dialogue and contribute meaningfully to the evolving discourse of their field. Through project-based studio courses, students will gain practical experience synthesizing these skills toward the production of new and innovative creative media, and they will have opportunities to develop areas of emphasis within the broader set of skills explored throughout the program.

The proposed program's curriculum will provide students with knowledge and skills relevant to a range of potential creative practices incorporating five main focus areas: motion, sound, computation and data, interaction, and emergent systems and game design. Motion will cover topics about video, animation, and immersive media. Sound will investigate synthesis, sound design, and acoustic installations. Computation and data will concern creative coding, artificial intelligence, parametric design, and advanced fabrication methods. Interaction will study physical computing, app design, installation design, and interactive media. Emergent systems and game design will inquire into interactive narrative, gaming, and world building.

The proposed BFA degree program in Emerging Media and Technology is designed to prepare graduates to enter into a broad range of professions such as game designer, application designer, creative video editing and directing, 2D and 3D modelers and animators, motion graphics artists, sound designers and performers, interactive media designers, and immersive media consultants. These careers can, in turn, support a broad variety of industries, including game design, film and animation, sound design, interface design, interior design, graphic design, fashion design, fine arts, exhibition design, museums, advertising, theatre and performance, and other entertainment industries.

Worldwide, most aspects of life continue to trend toward a more digital and connected state. This movement toward digital interconnectivity and utility has produced a rich environment of evolving media technologies, new and unexplored creative opportunities, and a growing need for media literacy and expertise, as evidenced in the World Economic Forum Future of Jobs Survey 2020 which lists "Creativity, originality and initiative," "Complex problem-solving," "Critical thinking and analysis," and "Technology design and programming" among the top 15 skills for 2025.[5] Graduates of the proposed program will be capable of addressing emerging media and technology as a crucial aspect of contemporary creative practices. Through the coursework, students will develop an awareness and literacy necessary to critically navigate a world of information, media, and technology saturation. The proposed program aims to develop creative citizens able to speculate on the future of their communities and society and drive innovation through creative application of new technologies, media, and practices.

The proposed degree program seeks to address the global expansion in the creative industries' engagement with emerging media and technology. Graduates of the proposed program will be prepared to work as creative practitioners, and be able to engage in emerging and rapidly growing fields of practice within the creative industry. For example, the proposed program will prepare students for employment in the game design industry, which is predicted to be a 272.4

[5] *Future of Jobs Survey 2020* (2020), World Economic Forum, p. 36.

billion US dollar industry by 2025, up from $153.3 billion in 2019.[6] Likewise, a recent report by Frost & Sullivan lays bare the potential for gaming in the Middle East and North Africa region as an economic catalyst. According to the research firm, gaming in the MENA region is estimated to be worth $4.5bn. The number of Middle East gamers is believed to be over 100 million.[7]

The proposed program's emphasis on incorporating computer coding and elements of game design into traditional digital media topics within the context of an art and design education will address an important projected need: the education of individuals capable of computational thinking and creative problem solving.[8] This along with other "future-proof" skills addressed by the proposed program will be critical in preparing students to be successful in the emerging industries of the future.[9]

The proposed BFA degree program in Emerging Media and Technology responds to rapid industry growth and demand for skilled graduates able to work across disciplines and cultures. Graduates will be highly qualified arts and design professionals who will be capable of shaping the future of emerging media-based industries. Virginia Commonwealth University is fully committed to offering the proposed degree program to ensure professionals are prepared and trained to meet industry needs.

Institutional Mission

As stated in its mission, "Virginia Commonwealth University and its academic health sciences center serve as one national urban public research institution dedicated to the success and well-being of our students, patients, faculty, staff, and community through:

- Real-world learning that furthers civic engagement, inquiry, discovery, and innovation;
- Research that expands the boundaries of new knowledge and creative expression and promotes translational applications to improve the quality of human life;
- Interdisciplinary collaborations and community partnerships that advance innovation, enhance cultural and economic vitality, and solve society's most complex challenges;
- Health sciences that preserve and restore health for all people, seek the cause and cure of diseases through groundbreaking research, and educate those who serve humanity; and
- Deeply ingrained core values of diversity, inclusion, and equity that provide a safe, trusting, and supportive environment to explore, create, learn, and serve."

The proposed BFA in Emerging Media and Technology directly serves to fulfill the mission of the University such that it will provide students with "real-world learning that furthers innovation" and promotes "creative expression." The proposed program aims to provide education relevant to contemporary creative practices by addressing emerging media and technology as crucial aspects of these evolving practices. The proposed program also recognizes

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[6] *Video Games: Global Markets*. BCC Publishing, October 2020, p. 10.

[7] David Nidchu. What does the future hold for the GCC's gaming industry? https://gulfbusiness.com/what-does-the-future-hold-for-the-gccs-gaming-industry/ December 19, 2020.

[8] García-Pérez, Laura, et. al. *Skills for a working future: How to bring about professional success from the educational setting*. Education Sciences [EJ1283072], 2021, p.4.

[9] Ibid. p. 6.

"emerging media" as a language of contemporary culture by learning how to read and write in the framework of emerging cultural production — this will develop the awareness and literacy necessary for the next generation of creative citizens to critically navigate a world of information, media, and technology saturation. The proposed degree program is included in the institution's six-year plan.

Program Accreditation or State Agency Authorization

The National Association of Schools of Art and Design (NASAD) is an organization that serves as the accreditation organization for schools, conservatories, colleges, and universities. NASAD establishes national standards for undergraduate and graduate degrees and programs for art and design and art/design-related disciplines, and provides assistance to institutions and individuals engaged in artistic, scholarly, educational, and other art/design-related endeavors. One of NASAD's objectives is to "To establish reasonable standards centered on the knowledge and skills necessary to develop academic and professional competence at various program levels."[10]

This proposal is targeting the following timeline to apply for NASAD's accreditation of the Emerging Media and Technology program in line with the evaluation calendar for institutions applying for NASAD membership or renewal of membership[11]:

The NASAD requires that programs and courses be in the process of being offered during the site the visit of the accreditation process. If the proposed BFA degree program in Emerging Media and Technology is approved, the self-study document can begin and VCU would begin in fall 2023. VCU would be eligible for a site visit in spring 2024 as all courses will have been in the process of being offered.

VCU is proposing the following timeline for the accreditation process:

September 2023	Apply for accreditation
Spring 2024	Submit self-study document and materials to NASAD
Fall 2024	Site visit by accreditation team
May 2025	Decision rendered about accreditation status

VCU anticipates that formal accreditation would be granted as of the last day of the spring 2025 site visit. Once accredited, NASAD requires an annual report submission to confirm program compliance as well as a self-study and site visit upon reaccreditation.

[10] *The National Association of Schools of Art and Design (NASAD) Website*. 2021. https://nasad.arts-accredit.org/about/purposes/

[11] *National Association of Schools of Art and Design Procedures For Institutions, Membership Procedures*. National Association of Schools of Art and Design. (n.d.). https://nasad.arts-accredit.org/wp-content/uploads/sites/3/2016/03/PI-NASAD2016.pdf.

Admission Criteria

Admission to the proposed BFA degree program in Emerging Media and Technology will be dictated by the admissions policies of Virginia Commonwealth University. In accordance with the 2021-2022 Undergraduate Bulletin, the Office of Admissions uses the following guidelines to determine whether students may be considered for regular admission:

- Minimum high school core courses: English – 4 units; Math (Algebra I, Geometry, Algebra II) – 3 units; Science (at least 2 laboratory courses) – 3 units; Social Sciences – 3 units; Foreign Language or American Sign Language – 2 units; Fine or Practical Art – 1 unit; and Health and PE – 2 units. Additional units of math, science and foreign language are strongly recommended.
- SAT or ACT scores: Freshman applicants (high school graduates and GED holders) under the age of 22 must submit SAT or ACT scores and, if applicable, an official copy of their GED scores. VCU does not have minimum SAT or ACT scores at this time. The mid-range for enrolled freshmen is 1070-1250 for SAT. Freshman applicants with a minimum high school GPA of 3.3 may request that their application be reviewed without submitting standardized test scores.
- Students must submit an official online application, application fee, and official transcripts to VCU's Office of Admissions.

In addition to the above requirements, all applicants whose native language is not English must submit the following:

- Evidence of English language proficiency based on satisfactory scores for the Test of English as a Foreign Language (TOEFL), the International English Language Testing System (IELTS) or the Pearson Test of English (PTE). Minimum TOEFL scores are 550 (paper) or 80 (Internet) while the minimum IELTS score is 6.0 and PTE score is 53.

Freshman admission guidelines for the School of the Arts
Students applying to the School of the Arts must submit the standard university undergraduate application in addition to supplemental materials. The School of the Arts faculty reviews all applications to programs in the School of the Arts. All visual arts and design applicants and all technical theatre applicants are required to submit a visual portfolio with their application.

Formal Admission to the BFA in Emerging Media and Technology
Students who have successfully completed the Art Foundation Program are eligible to apply for admission to the Bachelor of Fine Arts in the Emerging Media and Technology. Admission requirements include:

1) Successful completion of the required four Art Foundation studios and the two project classes,
2) Maintaining a minimum overall college GPA of 2.0 or above,
3) Successful completion of all the freshmen required coursework, and
4) Submission of a portfolio of creative work completed in Art Foundation courses during the freshman year.

Curriculum

The proposed BFA in Emerging Media and Technology will require 120 credits.

The curriculum for the degree program has been designed to meet the standards of the National Association of Schools of Art and Design (NASAD), the primary national accrediting body for programs in art and design in the United States.

The curriculum of the proposed program aims to engage students in exploring the creative potential of emerging technologies, evolving industries, and new media. This exploration, along with development of technical skill, creative voice, and fluency in the discourse of the fields of art and design, will provide students with a solid foundation for their own creative practice and participation in a range of creative professions. This proposed program is designed to prepare students to enter professional practice across a range of creative disciplines involving emerging media and technology.

The core curriculum is structured to prepare students in the following areas: (1) engage students to develop awareness, skills, and capacities related to design and artistic practice within emerging media and technology, (2) build knowledge of relevant theories and precedents within the fields of art and design, (3) and synthesize both theory and skill into practice-based scenarios, wherein students will apply a methodology of research and ideation in order to develop creative artifacts relevant to emerging media and technology. Students in the proposed BFA in Emerging Media and Technology will learn about a variety of creative media technologies and how they interrelate in various professional settings and applications. Through the core curriculum, they will become proficient in a broad array of tools, enabling them to understand and engage productively at the intersections between various forms of emerging creative media.

New courses are denoted with an asterisk.

Program Requirements

General Education Requirements (30 credits)
The General Education curriculum is a requirement for all VCU undergraduate students and consists of 30 credit hours divided into three sections: 1) foundations, 2) breadth of knowledge and 3) areas of inquiry.

Art Foundations (20 credit hours)
ARTH 103. Survey of Art I (3)
ARTH 104. Survey of Art II (3)
ARTF 131. Drawing Studio (3)
ARTF 132. Surface Research (3)
ARTF 133. Space Research (3)
ARTF 134. Time Studio (3)
ARTF 138. Project Seminar (1)
ARTF 139. Project Studio (1)

Core Courses (54 credit hours)
MTEC 211. Principles of Motion (3)
MTEC 212. Principles of Sound (3)
MTEC 221. Precedent, Context and Futures* (3)
MTEC 222. Process and Content* (3)
MTEC 301. Synthesis Studio (12) (3 credits repeated four semesters for a total of 12 credits)
MTEC 313. Computational Art and Design (3)
MTEC 314. Interaction (3)
MTEC 315. Emergent Systems and Game Design* (3)
MTEC 323. Emerging Practices* (3)
MTEC 324. Criticality* (3)
MTEC 401. Thesis Studio I (6)
MTEC 401. Thesis Studio II (6)
MTEC 493. Practicum (3)

Electives (15 credit hours)

Total: 120 credit hours

Practicum Requirements
The BFA in Emerging Media and Technology program requires a practicum course engaging students in a practical industry, community, or research experience. Students enrolled in this course are required to complete a supervised practical work experience that is coordinated with professional emerging media and technology professionals. The practicum process and outcome are supervised by a faculty member to confirm successful completion of the training. Assessment measures include employer's evaluation of the practicum, midterm report, and final practicum presentation. A student who fails the practicum experience may retake the course in a subsequent semester to complete the program.

Faculty Resources

The proposed program will be administered by the Dean's Office of the VCU School of the Arts in Qatar. There will be 10 full-time faculty to teach core and required courses in the proposed degree program. The faculty members teaching core and required courses in the degree program have a combined 70 years of teaching experience in art and design, computerized digital imaging, new media, graphic design, digital animation, and other related disciplines. Five of the faculty hold the rank of Associate Professor, with the remaining five holding the rank of Assistant Professor. Each faculty member holds a terminal degree in their respective field.

All faculty members have published in peer-reviewed journals and serve as leaders on national organizations. Faculty have also authored book chapters, whitepapers, served as keynotes speakers at regional and national conferences, and lead large art initiatives related to motion, sound, computation, interaction, emergent systems and game design, and world building.

See Appendix C for the faculty curriculum vitae (abbreviated).

Student Learning Assessment

Students who complete the proposed BFA in Emerging Media and Technology will possess the appropriate knowledge, skills, and abilities needed to engage in developing individual creative practices relevant to a range of potential careers in technology, design, and the arts. Student learning will be assessed throughout the program using a variety of formative and summative measures. Assessment measures will include, but are not limited to, assigned quizzes, tests, projects, and presentations during classroom instruction. Students who complete the degree will possess a body of creative work that demonstrates skill, ability, and knowledge relevant to their chosen field of practice within emerging media.

The following learning outcomes were designed by a task force of faculty members in the School of the Arts appointed based on their expertise in disciplines related to the proposed program. These learning outcomes were designed to address the projected workplace competencies within the creative disciplines.[12] These learning outcomes were designed to meet NASAD recommendations for student competencies in programs related to digital media.[13]

The program will be assessed by faculty based on student outcomes on an annual basis, following institutional assessment tools for quantitative data and departmental meetings and retreats for qualitative assessment. The learning outcomes will be tracked, recorded, and critically analyzed through VCU's assessment management system Taskstream AMS by Watermark™. Data analyses are performed of students' progress every semester and the results are recorded annually in the Taskstream system.

<u>Learning Outcomes</u>
All students will be able to:

- Proficiently apply technology and software related to emerging media including, motion, sound, interaction, and computation.
- Discover new potentials of emerging media and technology through creative experimentation and the design and production of creative artifacts.
- Develop creative works within the combined areas of video and animation, sound, and computational and interactive media that are relevant to contemporary discourse in art and design.
- Analyze the significance of their work and its relevance to contemporary and future issues in both oral and written contexts.
- Theorize on the future of communities, cultures, and economies in order to explore the implications of a variety of media and technologies.
- Develop material relevant to professional practice in order to prepare to pursue a career trajectory. This may include developing the following: resume/CV, artist statement, portfolio website.

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[12] *The Future of Jobs Report 2020*. World Economic Forum, 2020.

[13] *National Association of Schools of Art and Design Competencies Summary*. National Association of Schools of Art and Design. (n.d.). https://nasad.arts-accredit.org/wp-content/uploads/sites/3/2015/11/BFA-DigitalMedia.pdf

Curriculum map for the proposed BFA in Emerging Media and Technology

Program Learning Outcomes	**Core and Required Courses**	**Assessment Measures**
Proficiently apply technology and software related to emerging media, including motion, sound, interaction, and computation.	MTEC 211. Principles of Motion MTEC 212. Principles of Sound MTEC 313. Computational Art and Design MTEC 314. Interaction MTEC 315. Emergent Systems and Game Design	Formative: Class discussions, critique of work in progress, guest critiques, site visits Summative: Finished studio projects, reflective design documents
Discover new potentials of emerging media and technology through creative experimentation and the design and production of creative artifacts.	MTEC 222. Process and Content MTEC 301. Synthesis Studio MTEC 401. Thesis Studio I MTEC 402. Thesis Studio II	Formative: Class discussions, critique of work in progress Summative: Finished studio projects, reflective design documents, photographic documentation of work, written abstracts, oral and visual presentations
Develop creative works within the combined areas of video and animation, sound, and computational and interactive media that are relevant to contemporary discourse in art and design.	MTEC 221. Precedent, Context and Futures MTEC 222. Process and Content MTEC 301. Synthesis Studio MTEC 324. Criticality MTEC 401. Thesis Studio I MTEC 402. Thesis Studio II	Formative: Class discussions, quizzes, writing assignments, critique of work in progress Summative: Finished studio projects, reflective design documents, photographic documentation of work, written abstracts, written papers, oral and visual presentations
Develop material relevant to professional practice in order to prepare to pursue a career trajectory. This may include developing the following: resume/CV, artist statement, portfolio website, etc.	MTEC 221. Precedent, Context and Futures MTEC 301. Synthesis Studio MTEC 323. Emerging Practices MTEC 324. Criticality MTEC 401. Thesis Studio I MTEC 402. Thesis Studio II	Formative: Class discussions, quizzes, writing assignments, critique of work in progress Summative: Reflective design documents, written abstracts, written papers, oral and visual presentations

Theorize on the future of communities, cultures, and economies in order to explore the implications of a variety of media and technologies.	MTEC 221. Precedent, Context and Futures MTEC 222. Process and Content MTEC 301. Synthesis Studio MTEC 323. Emerging Practices MTEC 324. Criticality MTEC 401. Thesis Studio I MTEC 402. Thesis Studio II	Formative: Class discussions, quizzes, writing assignments, critique of work in progress Summative: Finished studio projects, written abstracts, written papers, oral and visual presentations
Develop material relevant to professional practice in order to prepare to pursue a career trajectory.	MTEC 301. Synthesis Studio MTEC 323. Emerging Practices MTEC 401. Thesis Studio I MTEC 402. Thesis Studio II MTEC 493. Practicum	Formative: Writing assignments, critique of work in progress Summative: Written abstracts, oral and visual presentations, written project proposals, design documents, portfolio website

Employment Skills

Graduates of the proposed program will be qualified to work in a range of careers within the creative economy that include technology, design, and the arts. Students who complete the degree will possess a body of creative work that demonstrates skills, ability, and knowledge relevant to their chosen field of practice within emerging media. The creative sector encompasses creative expressions, the arts, and the cultural or creative industries such as design, fashion, music, publishing, audio-visual, animation, performing, visual and literary arts as well as architecture, advertising, broadcasting, and gaming.[14] All graduates of the proposed BFA in Emerging Media and Technology will be able to:

- Develop and produce creative artifacts within the combined areas of motion, sound, and computational and interactive media.
- Demonstrate literacy with the tools and software utilized in the disciplines related to motion, sound, and computational and interactive media.
- Innovate creative solutions to a range of design problems by applying skills in the areas of emerging media and technology.
- Independently identify and solve problems of a technical nature related to tools and processes in the fields of emerging media.
- Work collaboratively in an interdisciplinary workplace environment.
- Pursue and maintain an individualized artistic practice.

[14] *Creative Disruption: The Impact of emerging technologies on the creative economy.* World Economic Forum, February 2018, p. 4. https://www3.weforum.org/docs/39655_CREATIVE-DISRUPTION.pdf

- Utilize written and oral modes to effectively communicate with clients, collaborators, and/or stakeholders.
- Contribute to the creative industry, community, and discourse, both locally and globally, using appropriate means of networking and self-promotion.

Relationship to Existing VCU Programs

The proposed BFA in Emerging Media and Technology is not similar or related to an existing degree program at Virginia Commonwealth University. The proposed BFA in Emerging Media and Technology is not an expansion of an existing concentration, emphasis area, focus area, major, minor, or track.

The proposed program is planned to be implemented on the Qatar branch campus of VCU School of the Arts (VCUarts Qatar). The BFA in Emerging Media and Technology will not compromise any existing degree programs at VCU School of the Arts. No degree programs will close as a result of the initiation and operation of the proposed degree program.

Justification for the Proposed Program

Response to Current Needs
(Specific Demand)

Emerging technology and media play increasingly central roles in the ways we communicate and interact socially, how we learn, and how we generally conduct our lives. This accelerated integration of new media technologies is a key component of what has been described as the Fourth Industrial Revolution.[15] The Fourth Industrial Revolution is building on the precepts of the Third Industrial Revolution (electronics and automated production) and is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres. The creative industries have expanded to capitalize on the new opportunities afforded by these technological and economic changes, giving rise to new employment opportunities[16] and a growing need for workplace skills related to creative thinking and the adoption of new technologies.[17]

The current needs in Qatar and internationally which this proposal addresses include: (1) the expansion of creative industries and (2) the increasing relevance of computational thinking as a necessary workplace skill.

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[15] Schwab, Klaus. *The Fourth Industrial Revolution: what it means, how to respond.* World Economic Forum, 14 January, 2016, https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond.

[16] *Bureau of Labor Statistics*, U.S. Department of Labor, Occupational Outlook Handbook, https://www.bls.gov/ooh/ (visited 11 October 2021).

[17] Penprase, Edward. *The fourth industrial revolution and higher education*. Higher education in the era of the fourth industrial revolution (N. Gleason, ed.) Singapore: Springer Nature, 2018, p. 221.

Global Expansion and Evolution of Emerging Media and Technology

The world's economy is at another pivotal moment as artificial intelligence, the Internet of Things (IoT), and Augmented Reality (AR) are transitioning from buzz words to the basis for long-term national economic potential. 5G connectivity promises to lead consumers, industries, and governments to new frontiers of productivity and innovation.[18] More generally, the digitization of the economy is likely to further increase the demand for creative skills.[19] Graduates of the proposed program will be prepared to work as creative practitioners and be able to engage in emerging and rapidly growing fields of practice within the creative industry, such as game designers, set designers, special effects artists, augmented reality/virtual reality (AR/VR) designers, and data artists.

According to Business Communication Company (BCC) Research estimates, the global virtual and augmented reality technologies market was valued at $8.8 billion in 2017 and is predicted to grow at a compound annual growth rate (CAGR) of 60.4% to reach $142.4 billion by 2023.[20]

Augmented reality and virtual reality technologies are becoming increasingly embedded in applications and services that are available on PCs, laptops, and mobile devices. For example, AR/VR technology helps replace the real world with simulated environments displayed on computer screens.[21] The proposed program will help foster skills and knowledge applicable in various fields that involve immersive environments, such as education, worker training, building design, interior design, and movie creation.

Immersive technologies have also moved beyond the entertainment industry. The World Economic Forum, in partnership with the United Nations, is working with leading companies across the immersive technology ecosystem to encourage the development of use-cases that drive positive social impacts.[22] The program is well-positioned to leverage student digital literacies along with the local context of Qatar to foster creative critical citizens.

The art market scene is equally being disrupted by rapid enhancements in new technology and supported by adoption within mainstream cultural institutions. Digital art is increasingly becoming one of the key focal points on the international art market scene.[23] Students graduating from the new program will be well-versed in this digital paradigm of emerging media and technology.

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[18] Littmann, Dan, et. al. 5G: The chance to lead for a decade. Deloitte, 2018, p.1. https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-5g-deployment-imperative.pdf

[19] Bakhshi, Hasan, et. al. Creativity vs. robots: The creative economy and the future of employment. London, UK: Nesta, 2015, p. 21.

[20] Virtual and Augmented Reality: Technologies and Global Markets. BCC Publishing, Aug. 2018. p.10.

[21] Virtual and Augmented Reality: Technologies and Global Markets. BCC Publishing, Aug. 2018. p.34.

[22] Creative Disruption: The Impact of emerging technologies on the creative economy. World Economic Forum, February 2018, p. 17. https://www3.weforum.org/docs/39655_CREATIVE-DISRUPTION.pdf

[23] Art & Finance Report 2019, 6th Edition. Deloitte, 2019, p.197. https://www2.deloitte.com/lu/en/pages/art-finance/articles/art-finance-report.html

The proposed program acknowledges the impacts of the emerging fourth industrial revolution technology in terms of economy, environment, and culture, enabling students both to comprehend the individual technologies in detail and to be able to thoughtfully analyze, predict, and author the evolution of networked systems of technology, the environment, and socio-cultural systems.[24]

Computational Thinking/Game Design

As technology and programmed interactivity become more universally integrated into the design of everyday objects and experiences, computational thinking and skills will become increasingly relevant to the designers and creative workers involved in their evolution and production. As technological industries advance, including in areas of the world such as the Middle East where creative and technological economies are newly developing, "there will be strong demand for professionals who can blend digital and STEM skills with traditional subject expertise."[25] Due to the portability of digital media in general and its globally universal adoption, this blending of skills occurs at the forefront of contemporary innovation, and includes aptitudes such as "innovative and adaptable thinking, in order to streamline adaptation in diverse situations and prioritize innovation; intercultural skills, in order to respond to different settings; computational thinking, in order to enable the translation of a large amount of abstract data; digital literacy, in order to master communication channels; multidisciplinarity, which makes it possible to interrelate different fields; design mentality." [26]

Graduates of the proposed BFA program in Emerging Media and Technology will have experience working on projects and in environments where adaptability and interdisciplinarity play key roles in their critical thinking, development processes, and working outcomes. Adaptability and the ability to reframe their approach to digital media and design through the power of computing will be key employment skills in the creative industries of the future. These employable skills correlate to the evolving needs of businesses, which should "submerge themselves into the digital paradigm, as organizations themselves must take on this challenge as much as workers. This will be necessary in order to take on competition in the market."[27]

As life has become increasingly interactive and the video game industry has exploded, gamification is emerging as an innovative and effective approach to improving or augmenting systems in a variety of fields. Many opportunities for innovation exist within both the gaming industry and other industries and areas that could potentially benefit from a gamified approach. There will likely be an increase in need for graduates who can grasp computational thinking and who have an education including game design topics and tools across a variety of areas of employment, as "Games can teach new skills, such as computer programming," and "Many academicians believe that the gamification of education is the way of the future and video

[24] Penprase, Edward. The fourth industrial revolution and higher education. Higher education in the era of the fourth industrial revolution (N. Gleason, ed.) Singapore: Springer Nature, 2018, p. 224.
[25] The Future of Jobs and Skills in the Middle East and North Africa, Preparing the Region for the Fourth Industrial Revolution. World Economic Forum, 2017. p. 7.
[26] García-Pérez, Laura, et. al. Skills for a working future: How to bring about professional success from the educational setting. Education Sciences [EJ1283072], 2021, p. 2.
[27] Ibid, p. 22.

gaming is expected to become a vital tool that allows students to take a more active role in learning and developing technology skills."[28]

Employment Demand

Graduates of the proposed BFA in Emerging Media and Technology will be qualified for a wide variety of careers using new media, including graphic design, digital animation, motion graphics, 3D visualization, game and interactive media design, music and sound design, video production, web design, photography, and other fields. Job growth in these areas is expected in Qatar and the Middle East.

Qatar Demand

As part of the country's diversification strategy The Oxford Business Group reports Qatar's continued focus on building up knowledge-based sectors, such as production and publishing. This has helped shape an environment conducive to the sector's future growth and potential[29] as well as the recent launch of Media City in Qatar. It was established by Amiri Decree No. (13) issued in 2019 to drive the growth and development of the media industry in the country and become an international hub for businesses, organizations, and entrepreneurs with a focus on traditional and digital media, technology, communications, research, and development.[30]

Qatar's growing access to some of the world's fastest internet speeds boosts the consumption of digital media. This could mean more opportunities for growth in both content production and advertising.[31]

According to the "Media Use in the Middle East" study carried out by Northwestern University in Qatar, "shifts in the supply of regional media in the Middle East highlights a strengthened Arabic language content across all media. It also shows that the number of media channels has increased and content offerings have not only expanded but diversified. This content has come from a wider range of sources, including new local and international players not typically associated with the industry in the Middle East."[32] This clearly indicates an expansion of the media economies in the Qatar region, with the expectation that employment demand will follow.

For instance, in the past decade, Qatar has witnessed an exponential growth of media companies including production companies such as the Doha Film Institute (DFI), The Film House, Resolution Productions, Ginger Camel, The Edge Picture Company and Katara Studios; as well as television networks such as Al Kass, Al Jazeera and Qatar Television, which constitute fertile repositories of job prospects for the Emerging Media and Technology graduates.

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[28] Video Games: Global Markets. BCC Publishing, Oct. 2020. p. 23.

[29] *Ongoing investments In Qatar's media sector point to an evolving market*. Oxford Business Group, 19 April 2017, https://oxfordbusinessgroup.com/overview/spotlight-ongoing-investments-point-towards-evolving-market-sector-looks-establish-itself-global.

[30] *Media City signs partnership deal with Euronews.* Gulf Times, 2 February, 2021.

[31] *Media Use in the Middle East: A Five Year Retrospection*. Media In The Middle East. Northwestern University in Qatar. 2017. http://www.mideastmedia.org/.

[32] Ibid

The proliferation of Emerging Media companies with emphasis on virtual realty, augmented reality and mixed reality app development is conspicuous in the local and regional context. Lucidity Reality Labs[33] (spatial computing business solutions – AR/VR/MR/AI); Reality4D[34] (interactive 3D solutions); Sunovatech[35] (game asset development and gamification for infrastructure industry); A101[36] (digital transformation); Zero Latency[37] VR (free-roam virtual reality entertainment); and Procyon Lab[38] (evolving brand experience) constitute some of the leading Qatar-based companies providing future EM&T graduates with jobs in the VR, AR, MR app development, software development, mobile applications, game asset development, and gamification for infrastructure industry.

A search of job listings relevant to Qatar and the Gulf Region demonstrates employment demand in fields relevant to the proposed BFA degree program in Emerging Media and Technology. Specifically at the time of search, several job listings for positions related to game design, data visualization, sound production, immersive media, multimedia, and other fields were found.

According to research in the Statista Global Consumer Survey[39]revenue in the digital media market in Qatar is projected to reach $94.5 million US dollars in 2021. Within the digital media market, revenue in video-on-demand is the largest segment with projections to reach US $39.5 million US dollars in 2021. Within these sectors revenue is expected to show a compound annual growth rate (CAGR 2021-2025) of 8.91%, resulting in a projected market volume of $47.8 million US dollars by 2025. Within the video game market, the largest segment is mobile games with a projected market volume of $22.7 million US dollars in 2021. User penetration will be 70.1% in 2021 and is expected to hit 77.3% by 2025.

Global Demand

The creative economy is defined as the portion of the economy containing jobs that rely on knowledge-based and non-repetitive skills as their key attributes. This encompasses creative endeavors such as music, film and television, gaming, advertising, publishing and literature, as well as architecture, design, arts, and fashion.[40]

The convergence of digital technologies and the creative economy is having a disruptive effect on society in ways that would have seemed hypothetical. We are witnessing the emergence of a Fourth Industrial Revolution, where technology is more accessible, more widely used and more seamlessly integrated than ever.[41]

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[33] https://lucidrealitylabs.com
[34] https://reality4d.me
[35] https://sunovatech.com
[36] https://a101.com
[37] https://zerolatencyvr.com
[38] http://procyonlab.com
[39] *The statistics portal*. Statista. (n.d.). https://www.statista.com/.
[40] *Creative Disruption: The Impact of emerging technologies on the creative economy.* World Economic Forum, February 2018, p. 4. https://www3.weforum.org/docs/39655_CREATIVE-DISRUPTION.pdf
[41] Ibid

One disruption will undoubtedly come in the form of automation and augmentation of human creative processes. Artificial intelligence has created original music, written scripts, generated art, and even created an original video game. However, for creative activities, there is reason for optimism. It is expected that creative occupations will see an increase in jobs, despite automation, and the change in labor demand is predicted to be as high as 85% in some economies.[42] Also, a new medium in the form of immersive technologies has seen a series of investments into the augmented reality/virtual reality (AR/VR) space. Research shows that AR technology is currently enabled on 1 million mobile devices and is expected to grow to more than 3.4 billion devices in 2020.[43]

Evidence of employment demand was gathered to demonstrate the state of the emerging media industry in Qatar and the regional Gulf Cooperation Council (GCC) countries. There is no degree program for emerging media in Qatar, many of the job postings reference existing degree programs — computer sciences — while the requirements of the position are in reality more aligned with the proposed program in emerging media and technology. The job announcements included in the proposal are intended to demonstrate the employment demand within the industries related to emerging media and technology. As such, some of the postings require varying degrees of experience or education. As with the above point, some of these experience requirements exist because there is currently no degree program in Qatar graduating students in this field, thus job postings ask for experience in creative and design jobs that goes beyond what students would typically get with a computer science degree. These should be viewed as indicative of a healthy industry with sustainable employment demand.

See Appendix D for employment demand.

Duplication

VCU School of the Arts would be the only institution in Doha, Qatar to offer a standalone BFA degree program in Emerging Media and Technology.

Student Demand

Virginia Commonwealth University School of the Arts evaluated students demand for the proposed BFA in Emerging Media and Technology program from two sources of data: 1) a survey of freshman and sophomore students from VCUarts Qatar who have not declared a major, and 2) a survey of sophomore, junior, and senior students.

In February 2022, the VCU School of the Arts administered a survey to 300 students in Art Foundations with undeclared majors to obtain evidence of student demand. The population of students surveyed were from the VCU School of the Arts in Doha, Qatar. A total of 95 undergraduate students completed the survey. Of the 95 respondents, 27 responded "definitely" and 35 responded "very likely" when asked, if VCU Arts Qatar offered the proposed B.F.A. degree program in Emerging Media would they enroll.

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[42] Ibid, p.8

[43] *2020 Telecommunications, media and entertainment outlook.* Deloitte, 2020. pp.4

Student Survey

The first question asked was the most relevant to the level of student interest in the proposed program. The question stated, *If VCU offered a BFA in Emerging Media and Technology, how likely would you be to enroll?*

27 respondents indicated "Definitely" (28.42%)
35 respondents indicated "Very likely" (36.84%)
14 respondents indicated "Likely" (14.74%)
13 respondents indicated "Somewhat likely" (13.68%)
6 respondents indicated "Not at all likely" (6.32%)

Of those who responded to the survey, 89 (94.68%) were freshman and 4 (3.19%) were sophomores. All students were completing the Art Foundations course and with undeclared majors.

Supplemental Survey of Sophomore, Junior, and Senior Students

To supplement the student demand survey, the VCUarts Qatar campus surveyed sophomore, junior, and senior students to gauge the interest the proposed degree program. The student survey findings indicate that students are very interested in the proposed degree program. Eighty percent (80.5%) of the respondents indicated that the development of a new program focused on new media arts and design constitute an excellent addition to the existing academic programs. One of the students stated: "With the rise of New Media industry, I think it will be a great opportunity for VCUQ students. It would be great for the current students to have the option of minor in new media art if possible".

To the question of "Would the introduction of additional courses in moving image, i.e., video, animation, immersive media — VR/AR/XR (Virtual Reality, Augmented Reality, & Mixed Reality), and projection mapping, enhance the existing programs at VCUarts Qatar," 80.5% of the respondents indicated that this an excellent addition. One student stated: "Many of my family members were keen on learning this however because it was not offered as a course in VCUQ they had to study abroad. I am very excited to share with them the good news."

Relative to the question of "While completing your existing degree requirements at VCUarts Qatar, would you be interested in taking some of the above-mentioned courses if they become available?" seventy-five percent (75%) of the respondents indicated that they would be very interested. For instance, one of the students indicated that "I would be more than happy to take one of the above-mentioned courses to advance my knowledge and to learn new things."

See Appendix E for a copy of the student demand survey. Results of the survey are included separately and are located after the original survey.

State Council of Higher Education for Virginia
Summary of Projected Enrollments in Proposed Program

Year 1		Year 2		Year 3		Year 4 **Target Year (2-year institutions)**			Year 5 **Target Year (4-year institutions)**		
2023 - 2024		2024 - 2025		2025 - 2026		2026 - 2027			2027 - 2028		
HDCT 20	FTES 20	HDCT 40	FTES 40	HDCT 60	FTES 60	HDCT 80	FTES 80	GRAD 20	HDCT 80	FTES 80	GRAD 20

Assumptions
Retention percentage: 80%
Full-time students: 100%
Part-time students: 0%
Full-time students credit hours per semester: 15
Full-time students graduate in 4 years

Projected Resource Needs for the Proposed Program

Resource Needs

Virginia Commonwealth University and the VCU School of the Arts in Doha, Qatar have all of the faculty, classified support, equipment, space, library, and other resources necessary to launch the proposed BFA in Emerging Media and Technology. The following subsections detail the resources required to operate the program from its initiation in the fall 2023 semester through the target year 2026-27. Assessments of need for full-time, part-time, and adjunct faculty are based on a ratio of 1.0 FTE of instructional effort for every 18 FTE students in lower-division courses and 11 FTE students in upper-division courses. The proposed program will require a total of 1.82 FTE faculty instructional effort in 2023-24, rising to 6.00 FTE faculty by the target year of 2026-27.

Full-time Faculty
In the initiation year, 2023-2024, 2 full-time faculty will dedicate 100% instructional effort (2.0 FTE). By the target year, 10 faculty will dedicate 6.0 FTE of instructional effort to the proposed program.

Part-time Faculty
No part-time faculty are required to teach core courses in the proposed degree program.

Adjunct Faculty
No adjunct faculty are required to teach core courses in the proposed degree program.

Graduate Assistants
No graduate assistants are required to initiate or sustain the proposed degree program.

Classified Positions
A department administrator will support the proposed degree program. The program will require 1.00 FTE of classified support to initiate and this level of effort will remain constant through the target year. Salary for the department administrator will be $70,000 and benefits $60,000.

Two technicians will support the proposed degree program. The technicians will support equipment, software, projects related to audio and video technology, and computational and physical computing required for the program. The program will require 2.00 FTE of classified support to initiate and this level of effort will remain constant through the target year. Salary for the each technician will be $60,000 and benefits $10,000.

Equipment (including computers)
No new equipment, including computers, is required to initiate or sustain the proposed degree program. For the new hire, existing furniture and equipment (including computers) will be provided.

Library
No additional library resources are required to sustain the proposed degree program. No new library resources are needed to initiate and sustain the proposed modified program. The library has sufficient and appropriate journals, books, and online journals to support the proposed degree

program. Library resources are available to off-campus students through VCU's contract for online subscription services. VCU is a member of the Virtual Library of Virginia (VIVA), which is a consortium of academic libraries in Virginia. All VCU students have access to the interlibrary loan program.

Telecommunications
No additional telecommunications costs are needed to initiate or sustain the proposed degree program.

Space
No additional space is required to initiate or sustain the proposed degree program. There is sufficient adequate classroom and faculty office space.

Targeted Financial Aid
No targeted financial aid is required to initiate and sustain the proposed degree program.

Special Tuition or Fee Charges
No special tuition or fee charges will be utilized or instituted to initiate and sustain the proposed degree program.

Other Resources (specify)
No other resources are needed to initiate or sustain the proposed degree program.

Funds to Initiate and Operate the Degree Program

Figures provided in the table below will be compared to SCHEV funding estimates using the current base adequacy model. This comparison will serve as a reference for the estimated costs. If there are large discrepancies, SCHEV may request additional clarification to ensure the institution's assumptions are correct, or require modifications as a condition of approval.

Cost and Funding Sources to Initiate and Operate the Program			
Informational Category		**Program Initiation Year 2023 - 2024**	**Program Full Enrollment Year[1] 2025 - 2026**
1.	Projected Enrollment (Headcount)	20	60
2.	Projected Enrollment (FTE)	20	60
3.	Projected Enrollment Headcount of In-State Students		
4.	Projected Enrollment Headcount of Out-of-State Students	20	60
5.	Estimated Annual Tuition and E&G Fees for In-state Students in the Proposed Program	$0	$0
6.	Estimated Annual Tuition and E&G Fees for Out-of-State Students in the Proposed Program	$654,017	$2,139,005
7.	Projected Total Revenue from Tuition and E&G Fees Due to the Proposed Program	$654,017	$2,139,005
8.	Other Funding Sources Dedicated to the Proposed Program (e.g., grant, business entity, private sources)	$1,596,086	$3,788,290

[1] For the "Full Enrollment Year" use: for associate degrees, initiation year plus 1; for baccalaureate degrees, initiation plus 3; for masters degrees, initiation plus 2; for doctoral degrees, initiation plus 3.

Part V: Certification Statements

1. A request of any kind will be submitted to the General Assembly for funds to initiate and/or maintain the proposed degree program.

   Yes ☐

   No ☒

   If "Yes" is checked, include narrative text to describe: when the request will be made, how much will be requested, what the funds will be used for, and what will be done if the request is not fulfilled.

2. The proposed degree program is included in the institution's most recent six-year plan.

   Yes ☒

   No ☐

   If "No" is checked, include narrative text to explain why the program is being advanced at the present time despite not being included in the six-year plan.

3. The institution's governing board has been provided information regarding duplication (if applicable) and labor market projections as part of its approval action.

   Yes ☒

   No ☐

   If "No" is checked, include narrative text to explain why the governing board has not been provided the information.

The institution's Chief Academic Officer attests to the accuracy of the above statements

Fotis Sotiropoulos, Ph.D.
Name (Printed)

Signature Date

Appendices

Appendix A – Sample Plan of Study

Year	Fall Semester	Spring Semester
Freshman	ARTF 131 Drawing Studio (3)	ARTF 133 Space Research (3)
	ARTF 132 Surface Research (3)	ARTF 134 Time Studio (3)
	ARTF 139 Project Studio (1) or ARTF 138 Project Seminar (1)	ARTF 139 Project Studio (1) or ARTF 138 Project Seminar (1)
	ARTH 103 Survey of Art I (3)	ARTH 104 Survey of Art II (3)
	UNIV 101 Introduction to the University (1)	UNIV 112 Focused Inquiry II (3)
	UNIV 111 Focused Inquiry I (3)	Gen. Ed. - Social/behaviorial science (3)
	Gen. Ed. - Quantitative foundation (3)	
Sophomore	MTEC 301 Synthesis Studio (3)	MTEC 301 Synthesis Studio (3)
	MTEC 211 Principles of Motion (3)	MTEC 313 Computational Art and Design (3)
	MTEC 212 Principles of Sound (3)	MTEC 222 Process and Content (3)
	MTEC 221 Precedent, Context and Futures (3)	Elective 1 (3)
	UNIV 200 Inquiry & Craft of Argument (3)	Gen. Ed. - Natural/physical science (3)
Junior	MTEC 301 Synthesis Studio (3)	MTEC 301 Synthesis Studio (3)
	MTEC 314 Interaction (3)	MTEC 315 Emergent Systems and Game Design (3)
	MTEC 323 Emerging Practices (3)	MTEC 324 Criticality (3)
	Elective 2 (3)	Elective 3 (3)
	Gen. Ed. (3)	Gen. Ed. (3)
Senior	MTEC 401 Thesis Studio I (6)	MTEC 402 Thesis Studio II (6)
	MTEC 493 Practicum (3)	Elective 5 (3)
	Elective 4 (3)	Gen. Ed (3)
	Gen. Ed (3)	

Credit Hours – Freshman – Fall Term	17
Credit Hours – Freshman – Spring Term	16
Credit Hours – Sophomore – Fall Term	15
Credit Hours – Sophomore – Spring Term	15
Credit Hours – Junior – Fall Term	15
Credit Hours – Junior – Spring Term	15
Credit Hours – Senior – Fall Term	15
Credit Hours – Senior – Spring Term	12
TOTAL CREDIT HOURS	120

Appendix B – Course Descriptions

New courses denoted with an asterisk (*).

ARTH 103. Survey of Art I. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Introductory survey of art from the prehistoric era through the 13th century, including examples from selected regions of Europe, Asia, Africa and the Americas. Illustrated lectures demonstrate visual analysis and other art historical methods while also identifying key monuments and artists' work in relationship to historical contexts.

ARTH 104. Survey of Art II. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Introductory survey of art from the 14th century through 21st century, including examples from selected regions of Europe, Asia, Africa and the Americas. Illustrated lectures demonstrate visual analysis and other art historical methods while also identifying key monuments and artists' work in relationship to historical contexts.

ARTF 131. Drawing Studio. 3 Hours.
Semester course; 6 studio hours. 3 credits. Open only to first-year fine arts and design majors in the School of the Arts. Drawing A to Z, from pencil to perspective, from sumi ink to skywriting. An intensive drawing studio covering the historic principles of drawing and their place in contemporary practice. Provides an in-depth investigation of line, perspective, the figure, gesture, space, atmosphere, erasure, etc. Through the repeated physical activity of drawing, students will refine their intellectual powers of observation and visualization.

ARTF 132. Surface Research. 3 Hours.
Semester course; 6 studio hours. 3 credits. Open only to first-year fine arts and design majors in the School of the Arts. A studio-based course designed to cultivate a student's ability to create and understand two-dimensional imagery. Will include basic principles of design, color and visual organization in traditional, digital and lens-based media. Course content will explore the context of imagery in the larger culture and the potential of art and design.

ARTF 133. Space Research. 3 Hours.
Semester course; 6 studio hours. 3 credits. Open only to first-year fine arts and design majors in the School of the Arts. A comprehensive investigation of three-dimensional phenomena in fine art and design. Will cultivate a student's ability to think, perceive, visualize, design and build in three dimensions. Issues of understanding and envisioning space, objects, scale and the relationship of the body to the built environment are subjects of the course. Students will acquire a broad skill set of fabrication techniques and an inquiry into the possibility of 21st-century materials.

ARTF 134. Time Studio. 3 Hours.
Semester course; 6 studio hours. 3 credits. Open only to first-year fine arts and design majors in the School of the Arts. Brings together tenets of contemporary practice that have extended the fields of fine art and design. Time-based media such as film, video and sound are included in this mix. The historically underrepresented impulses of theatrically and performance will be

explored. Students will use video as a primary tool, but will address larger issues of ephemerality, duration and the possibilities of the moving image.

ARTF 138. Project Seminar. 1-2 Hours.
Semester course; 1-2 seminar hours. 1-2 credits. May be repeated up to a maximum of four credits. Enrollment is restricted to first-year fine arts and design majors in the School of the Arts. A seminar on a selected issue, topic or skill in the fields of fine art and design.

ARTF 139. Project Studio. 1-2 Hours.
Semester course; 2-4 studio hours. 1-2 credits. May be repeated up to a maximum of four credits. Enrollment is restricted to first-year fine arts and design majors in the School of the Arts. A studio on a selected issue, topic or skill in the fields of fine art and design.

Core Courses
New courses are denoted with an asterisk (*).

MTEC 211 Principles of Motion. 3 Hours.*
Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course exploring the materiality of motion as a medium for creative practice. Explores tools, technologies, software, processes, and artifacts typical of creative work involving motion. Emphasis is placed on emerging technologies and future potentials related to motion in creative practice and may include projects related to video and film, 2D and 3D motion graphics/animation, performance, space, and kinetic installations.

MTEC 212 Principles of Sound. 3 Hours.*
Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course exploring the materiality of sound as a medium for creative practice. Explores tools, technologies, software, processes, and artifacts typical of creative work involving sound. Emphasis is placed on emerging technologies and future potentials related to sound and may include projects incorporating sound recording, sound synthesis, performance, spatial acoustics, and acoustic installations.

MTEC 221 Precedent, Context and Futures. 3 Hours. *
Semester course; 3 lecture hours. 3 credits. A pluralistic survey of historical examples, contemporary precedents, and future potentials of creative practice as an entity that is disrupted, shaped, and enabled by changes in technology, media, and context. Emphasis is placed on exploring creative practice as a process that is inseparable from contextual conditions including: culture, politics, power, religion, technology, and economies.

MTEC 222 Process and Content. 3 Hours. *
Semester course; 3 lecture hours. 3 credits. A Comprehensive analysis of a range of methods, processes, and philosophies used in the production of creative work. Distinction is made between the processes used to create work, the content and themes that the work explores, and the formats and materials used to realize the artifacts and outcomes resulting from the work. Emphasis is placed on exploring historical, contemporary, and future models of process and content development used to manage and facilitate the development of creative work.

MTEC 301 Synthesis Studio. 3 Hours.
Semester course: 3 credits. Repeated for a maximum of 12 credits. A studio space facilitating creative experimentation, individual student agency, critical engagement, research, and speculation. Students engage in collaborative inquiry, peer learning, and interdependent discovery in order to synthesize skills and ideas accumulated from other courses both inside and outside the program into creative work building toward developing individualized creative practices. Emphasis is placed on vertical integration of students across the sophomore and junior levels of the program through collaborative inquiry and peer learning.

MTEC 313 Computational Art and Design. 3 Hours. *
Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course exploring the materiality of information and computational/procedural processes related to creative practice. Explores tools, technologies, software, processes, and artifacts relevant to creative work involving computation. Emphasis is placed on emerging technologies and future potentials related to computation and may include projects related to parametric design, generative form making, data driven art, programming, artificial intelligence, and computer aided fabrication.

MTEC 314 Interaction. 3 Hours. *
Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course exploring tools, technologies, software, processes, and artifacts relevant to creative practice incorporating interactive systems. Emphasis is placed on emerging technologies and future potentials related to interaction and may include projects related to participatory systems, interface design, app design, physical computing, responsive artifacts, and interactive installations.

MTEC 315 Emergent Systems and Game Design. 3 Hours. *
Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course exploring tools, technologies, software, processes, and artifacts relevant to creative practice incorporating emergent systems & game design. Emphasis is placed on emerging technologies and future potentials related to emergent systems & game design and may include projects in game design, emergent systems, world building, content creation, interactive narrative, systems design, and play.

MTEC 323. **Emerging Practices.** 3 Hours. *
Semester course; 3 lecture hours. 3 credits. An overview and analysis of emerging and future fields of creative practice enabled by technology developments, new media, and cultural conditions. Emphasis is placed on emerging technologies and their implications for new creative practices within developing industries. Students examine contemporary art markets, design practices, entrepreneurship opportunities, and future areas of economic practice, as well as the cultural implications, legal frameworks, politics, and ethics of these practices.

MTEC 324 Criticality. 3 Hours. *
Semester course; 3 lecture hours. 3 credits. Through research, critical analysis, and discussion, students explore a range of theoretical frameworks, philosophies, concepts, and themes relevant

to the contemporary discourse surrounding creative practice in emerging media and technology. Students assess and reflect on their individual practice and its relation to the field.

MTEC 401 Thesis Studio I. 6 Hours.
Semester course: 3 lecture and 9 studio hours. 6 credits. Prerequisites: MTEC 221, MTEC 222, MTEC 301, MTEC 323, and MTEC 324. A studio space facilitating precedent review, theoretical framework development, and material / process exploration in support of a capstone body of work demonstrating synthesis of a diverse array of knowledge, skills, and experience gained over the students' progression through the program. Emphasis is placed on research, experimentation, and speculation toward themes, aesthetics, and conceptual development in order to demonstrate an individualized creative practice relevant to contemporary discourse, and future possibilities in the field.

MTEC 402 Thesis Studio II. 6 Hours.
Semester course: 3 lecture and 9 studio hours. 6 credits. Prerequisites: MTEC 401 Thesis Studio. A studio space facilitating the development, execution, and defense of a capstone body of work demonstrating synthesis of a diverse array of knowledge, skills, and experience gained over the students' progression through the program. Emphasis is placed on research, experimentation, and speculation toward themes, aesthetics, and conceptual development in order to demonstrate an individualized creative practice relevant to contemporary discourse, and future possibilities in the field.

MTEC 493 Practicum. 3 Hours. *
Semester course; 1 lecture and 6 studio hours. 3 credits. May be repeated for credit. Enrollment is restricted to students with permission of the instructor, approval of faculty adviser and department chair. This course engages students in practical experiences related to emerging media and technology through hands-on learning under the supervision of qualified practitioners. Examples of practical experiences include but are not limited to: internships, community projects, client projects, research production and dissemination (conference, exhibition, etc.), and/or involvement in faculty research projects.

Appendix C – Faculty Curriculum Vitae (abbreviated)

Hadeer Omar, BFA Graphic design, 2010, MFA Design, 2016, Virginia Commonwealth University in Qatar. Assistant Professor of Art Foundation. Specialization Area: new media, extended realities, and emerging technologies.

Haithem El-Hammali, PhD in Interior and Environmental Design, 2015, Texas Tech University Assistant Professor of Interior Design. Specialization Area: building information modeling, human computer interaction, virtual reality and augmented reality.

Joshua Rodenberg, MFA in Craft and Material Studies, 2007, Virginia Commonwealth University, Assistant Professor Art and Design Library. Specialization area: sound and video art, multimedia installation, and sound design

Levi Hammett, MFA in Graphic Design, 2006, Rhode Island School of Design, Associate Professor of Graphic Design. Specialization Area: computational design, typography, fabrication.

Maysaa Almumin, AA Diploma, RIBA II, 1999 in Architecture, Architectural Association School of Architecture in London, UK, Assistant Professor Art Foundation. Specialization Area: narrative film and performance for the camera.

Michael Hersrud, MFA in Graphic Design, 2006, Rhode Island School of Design, Associate Professor of Graphic Design. Specialization Area: graphic design, motion graphics, sound design.

Mohammad Nabil Suleiman, MArch in Emergent Technologies and Design, 2011, Architectural Association, School of Architecture in London, Assistant Professor of Interior Design. Specialization Area: architecture and urban design.

Nathan Ross Davis, MFA in Design, 2007, California College of the Arts, San Francisco. Associate Professor of Art Foundation. Specialization area: graphic design.

Ryan Browning, MFA in Interdisciplinary Art, 2008, Maryland Institute College of Art, Associate Professor of Art Foundations. Specialization Area: interdisciplinary fine arts.

Simone Muscolino, MFA in Architecture, 2000, Facoltà Architettura Politecnico Torino, Associate Professor of Art Foundation. Specialization Area: time-based media

Appendix D – Employment Demand

MEZAN
STUDIOS

Job Profile

Lead Game Developer

Send your resume to

jobs@mezanstudios.com

Who are Mezan Studios?

We're game development studio company focused on producing stellar video games from the Middle East and strive to provide a platform and a voice for aspiring game developers in the region.

We're pouring our hearts into developing Nightscape - an atmospheric adventure game inspired by ancient Arabian astronomy. A core component for us is unearthing inspiration sources from the region and translating them into fun and meaningful experiences!

Who are we looking for?

An experienced Lead Developer to join our growing team on an unannounced project. This role offers the opportunity to lead our coding efforts on brand new games from prototyping to launch. Salary is competitive/negotiable.

Responsibilities

We encourage autonomy, professional agility and curiosity to explore new avenues. Your main tasks will include but not be limited to:

- Architect the game code base and implement core concepts
- Work collaboratively with game designers and artists
- Mentor other developers within the team
- Regularly refactor to maintain a sane and flexible code base
- Rapidly prototype and experiment with game design

Requirements

- BSc in Computer Science and 5+ years professional experience with at least one shipped game
- Strong Object Oriented Programming skills (C, C#, C++)
- Strong understanding of game engines and their workflows (Unity or Unreal)

Desired Profile

- Comfortable prototyping and working with iterative development process
- Ability to analyze game designer requests and iterate with designers to deliver implementations that are fun and engaging, while still being robust and performant
- Contribution of ideas toward various aspects of the game's production and development

is a plus
- Passion for video games
- Excellent writing and speaking skills, in English
- Knowledge of Arabic is a plus but not a must
- Excellent interpersonal and presentation skills
- Statistical/data science exposure
- Demonstrate autonomy, attention to detail and solution-oriented creativity
- Be results oriented and have the ability to work under pressure
- Most importantly: comfortable working collaboratively with a strong team spirit in mind

Conditions

- Full time remote working with infrequent physical meetings at certain points in time

Opportunities

- Becoming a part of a newly established studio is your chance to materially influence how we do things, make an impact and take responsibility.
- Be part of a dynamic team that is open to initiatives and ideas
- Big opportunity to learn and potential exposure to other areas of game dev / business
- Ownership and agency of your field of expertise.
- We value a learning environment so plenty of room to learn and grow.
- You can have a real impact on our games.
- You don’t have to know it all (but you can make up for it with your drive to find solutions).

MEZAN
STUDIOS

Send your resume to

jobs@mezanstudios.com 🌟

Job Profile

Junior Developer

Who are Mezan Studios?

We’re game development studio company focused on producing stellar video games from the Middle East and strive to provide a platform and a voice for aspiring game developers in the region.

We’re pouring our hearts into developing Nightscape - an atmospheric adventure game inspired by ancient Arabian astronomy. A core component for us is unearthing inspiration sources from the region and translating them into fun and meaningful experiences!

Who are we looking for?

We are looking for a junior game programmer to join our growing team on an unannounced project. This role offers the opportunity to assist our coding efforts on brand-new games from prototyping to launch. Salary is competitive/negotiable.

Responsibilities

We encourage autonomy, professional agility and curiosity to explore new avenues. Your main tasks will include but not be limited to:

- Maintain the game code base and help implement core concepts
- Work collaboratively with game designers and artists
- Assist with refactoring to maintain a sane and flexible code base
- Rapidly prototype and experiment with game design

Requirements

- BSc in Computer Science and 2+ years professional experience with at least one shipped game
- Strong Object Oriented Programming skills (C#, C++, C)
- Strong understanding of game engines and their workflows (Unity or Unreal)

Desired Profile

- Comfortable prototyping and working with iterative development process
- Ability to analyze game designer requests and iterate with designers to deliver implementations that are fun and engaging while still being robust and performant

- Contribution of ideas toward various aspects of the game's production and development is a plus
- Passion for video games
- Excellent writing and speaking skills, in English
- Knowledge of Arabic is a plus but not a must
- Excellent interpersonal and presentation skills
- Demonstrate autonomy, attention to detail and solution oriented creativity
- Be results oriented and have the ability to work under pressure
- Most importantly: comfortable working collaboratively with a strong team spirit in mind

Conditions

- Full time remote working with infrequent physical meetings at certain points in time

Opportunities

- Becoming a part of a newly established studio is your chance to materially influence how we do things, make an impact and take responsibility.
- Be part of a dynamic team that is open to initiatives and ideas
- Big opportunity to learn and potential exposure to other areas of game dev / business
- Ownership and agency of your field of expertise.
- We value a learning environment so plenty of room to learn and grow.
- You can have a real impact on our games.
- You don't have to know it all (but you can make up for it with your drive to find solutions).

MEZAN
STUDIOS

Job Profile

UX Designer

Send your resume to

jobs@mezanstudios.com 🌟

Who are Mezan Studios?

We’re game development studio company focused on producing stellar video games from the Middle East and strive to provide a platform and a voice for aspiring game developers in the region.

We’re pouring our hearts into developing Nightscape - an atmospheric adventure game inspired by ancient Arabian astronomy. A core component for us is unearthing inspiration sources from the region and translating them into fun and meaningful experiences!

Who are we looking for?

We are looking for an experienced UI/UX Artist to join our growing team to create the best experiences for our players. This role offers the opportunity to work side-by-side with designers, developers and artists on UI development and graphic design.

Responsibilities

We encourage autonomy, professional agility and attention to detail. Your main tasks will include but not be limited to:

- Design and support GUI assets and UX flow for live and upcoming games
- Retain continuity of an existing UI style with attention to theme and feel
- Establish current design priorities, shortcomings and find creative solutions
- Work in close collaboration with our game team to create a groundbreaking player experience

Requirements

- 3+ years of experience crafting UIs in the video game industry
- Expertise in graphic design tools including Adobe Photoshop
- A varied portfolio showcasing artwork, including user-interfaces
- Understanding of animation principles and workflows in apps like Adobe After Effects or Spine

Desired Profile

- Comfortable prototyping and working with an iterative development process
- A pro-active hands-on approach, with a drive to get UI in game and working well for players

- A familiarity with technical UI implementation
- Passion for video games
- Be results oriented and have the ability to work under pressure
- Most importantly: comfortable working collaboratively with a strong team spirit in mind

Conditions

- Full time remote working with infrequent physical meetings at certain points in time

Opportunities

- Becoming a part of a newly established studio is your chance to materially influence howe do things, make an impact and take responsibility.
- Be part of a dynamic team that is open to initiatives and ideas
- Big opportunity to learn and potential exposure to other areas of game dev / business
- Ownership and agency of your field of expertise.
- We value a learning environment so plenty of room to learn and grow.
- You can have a real impact on our games.
- You don’t have to know it all (but you can make up for it with your drive to find solutions).

Creative Manager (EMGCC)

Careem Doha, Qatar (On-site) 4 weeks ago 30 applicants

Full-time · Mid-Senior level

1,001-5,000 employees · Information Technology & Services

See how you compare to 30 applicants. Try Premium for free

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About the job

About Careem

Careem is the everyday Super App for the greater Middle East. A pioneer of the region's ride-hailing economy, Careem, which was recently acquired by Uber, is expanding services across its platform to include mass transportation, payments, and delivery. Careem's mission is to simplify and improve the lives of people and build a lasting institution that inspires. Established in July 2012, Careem operates in more than 100 cities across 13 countries and has created more than one million income generating opportunities in the region with headquarters in Dubai and Berlin, and offices around MENA.

About The Role

The Creative Manager will work in a customer-focused team to design product marketing, digital, and content marketing creatives for the Careem Super App for the EM-GCC markets. The job involves working collaboratively with product designers, central and local marketing teams.

- Conceptualize & Design product marketing, digital and content marketing creatives

copywriters, product designers, graphic designers, brand & marketing managers to build and maintain visual brand excellence for a wide range of design needs
- Think creatively to produce new ideas and concepts and develop interactive design
- Strong visual and conceptual skills are essential. This must be coupled with technical ability behind the computer and a desire to grow and learn more about workflows, pushing design thinking and working with different visual styles

Qualifications/Requirements

- 4+ years of graphic design and video creation/editing experience
- Proficiency in creating graphics, animations. Adobe Creative Suite (Photoshop, Illustrator, Premiere, After Effects)
- Superb graphic design skills and a mastery over creating templates & guidelines
- Expertise in digital multi media & content marketing (emails, in-app tools, paid social and display channels) best practices
- Experience managing large projects & lead teams; ability to design according to business and product requirements
- Creative problem solving & project management skills
- Bachelor's degree or equivalent experience in Graphic Design
- Experience in GCC markets
- Native Arabic language is a plus

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Creative Manager, Doha, Qatar

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Pay range unavailable

Salary information is not available at the moment.

Are you interested in salary information for this job? Yes / No

About the company

Information Technology & Services • 1,001-5,000 employees • 3,592 on LinkedIn

At Careem, we are driven by the purpose of simplifying the lives of people and building an awesome organisation that inspires. Based in Dubai, we started our journey as a pioneer of the Middle East's ride-hailing economy. Today, Careem is the region's everyday Super App operational in 13 count ...show more

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Front End Engineer – Data Experience Team (Bangkok...
Agoda
Doha, Qatar
Be an early applicant
3 weeks ago

UI-UX Designer

Qatar Airways · Doha, Qatar 3 days ago · 102 applicants

Full-time · Entry level

10,001+ employees · Airlines/Aviation

1 school alumni

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About the job

About The Role

We are hiring for your skills to creat user flows, customer journey maps, wireframes, mockups and prototypes based on user research and customer feedback. Responsible for designing unique user-centric products and experience. Turn any user experience into intuitive designs that meet, maintain and expand Qatar Airways digital style guide.

Operational Duties

- Facilitate marketing vision by researching, sketching, protoyping and testing experiences for digital products.
- Design and deliver wireframes, user journeys, and mockups optimized for a wide range of devices and interfaces.
- Identify design problems and friction points, and devise solutions while taking into consideration technical recommendations for front-end and back-end developmentes.
- Take a user-centered approach to design, and make data-driven decisions related to core and new features.
- Optimize existing user interface designs, and design and deliver intuituive, user-centred designs for wide range of devices and interfaces. Apply the latest advancements in the UI industry to design outputs

screens layouts, colour palettes, typography user interface elements and icons.
- Develop designs with the customer at their core, ensuring they meet the customers' needs expectations at every point of their journey.
- Work with designers across the departments to build and maintain Qatar Airways design system and style guides.
- Synthesis & Ideation. Take the signal gathered on user and business problems and distill it into impactful problems against which to align the team. Drive collaborative, broad generation of ideas to define the solutions space, by synthesizing insights in a compelling, creative, and actionable way that cuts to the chase of the underlying user issues.
- Make and present design decisions to improve the information architechture of the design, based on fundamental design thinking principles.

Be part of an extraordinary story

Your skills. Your imagination. Your ambition. Here, there are no boundaries to your potential and the impact you can make. You'll find infinite opportunities to grow and work on the biggest, most rewarding challenges that will build your skills and experience. You have the chance to be a part of our future, and build the life you want while being part of an international community.

Our best is here and still to come. To us, impossible is only a challenge. Join us as we dare to achieve what's never been done before.

Together, everything is possible

Qualifications

About You

We are looking for a passionate and experienced professional to join the Marketing - Digital Innovation Team.
- Minimum qualification of bachelor's degree or equivalent is essential.
- 4+ years of experience of job related experience
- Digital & UI/UX experience
- Demonstrated experience in design systems
- Experience in Augmented & Virtual Reality
- Experience in XD, Miro, Figma, After Effects, Illustrator and Photoshop.

About Qatar Airways Group

Our story started with four aircraft. Today, we deliver excellence across 12 different businesses coming together as one. We've grown fast, broken records and set trends that others follow. We don't slow down by the fear of failure. Instead, we dare to achieve what's never been

So whether you're creating a unique experience for our customers or innovating behind the scenes, every person contributes to our proud story. A story of spectacular growth and determination. Now is the time to bring your best ideas and passion to a place where your ambition will know no boundaries, and be part of a truly global community.

How To Apply

If you are interested to submit your application and feel you are a good fit for this role, please complete our application form and upload your CV for our review and consideration.

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User Interface Designer, Doha, Qatar

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Pay range unavailable

Salary information is not available at the moment.

Are you interested in salary information for this job? Yes / No

About the company

Qatar Airways
1,509,735 followers

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Airlines/Aviation • 10,001+ employees • 27,599 on LinkedIn

Qatar Airways is the national airline of the State of Qatar. Based in Doha, the Airline's trendsetting on-board product focuses on: comfort, fine cuisine, the latest in-flight audio & video entertainment, award-winning service and a modern aircraft fleet averaging around 5 years of age. ...show more

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Questions?
Visit our Help Center.

Manage your account and privacy
Go to your Settings.

Select Language
English (English)

Animator

Al Aaira Enterprises · Doha, Doha, Qatar (On-site) 1 month ago · 8 applicants

Full-time · Entry level

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About the job

This job is sourced from a job board. Learn more

Job Description

Working knowledge of adobe creative suite (Ps,Ae,Ai,Pr, Etc)

2+ years of experience with video production, multimedia,
Understanding of various video formats,ratios and use cases youtube and instagram distribution (titles, descriptions, thumbnails, tags, Etc)
photography experience of DSLR camera functionality.

- Marketing & product memo 2d, 3d animation ,motion graphics.
- Must have knowledge of script/content writing and storyboarding.
- Produce innovative and creative ideas.
- Should be responsible for the task given to him/her.
- Ensures to submit consistent tasks on time.
- Job Function: IT Software : Software Products & Services
- Industry: Consumer Durables/FMCG
- Specialization:Graphic Designing/Animation/Web Designing
- Role: Visual Designer/ Animator
- Qualification:
  - Any Graduate
- Employment Type: Full Time

Job Posted by Consultant

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Animator, Doha, Doha, Qatar

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Pay range unavailable

Salary information is not available at the moment.

Are you interested in salary information for this job? Yes / No

Head Of Design

AudioMob · Abu Dhabi, United Arab Emirates (Hybrid) 23 hours ago · 46 applicants

Full-time · Mid-Senior level

1-10 employees · Marketing & Advertising

See recent hiring trends for AudioMob. Try Premium for free

Actively recruiting

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About the job

We're AudioMob!

And we're innovating the adtech and gaming space through our unique 'audio ads for games' format. Our format allows advertisers to engage consumers while letting developers monetise their games without disrupting gameplay. When an AudioMob ad is served, players can continue to play.

We are growing rapidly with a client portfolio that includes the likes of Warner Music Group, Empire and Ministry of Sound.

We're looking for a hungry superstar who wants to join us on this journey.

Description:
As a product-led organisation, design and user experience are at the forefront of every decision that AudioMob makes. As the Head of Design you will have the blend of a hands-on UI/UX experience and design direction for AudioMob, creating an innovative visual experience.

Ideal Experience:

solutions
- Strategic product thinking, actively participate in user research ensuring designs are informed by research and data
- An expert in UI, UX, and/or visual design
- In-depth understanding of human-centered design methods, design thinking techniques, and design tools

Roles and Responsibilities:
- Build systems and processes that allow design improvements and growth to operate optimally
- Create user experience flows and designs from concept to execution
- Partner closely with the engineering team to drive the strategy to achieve and build on the design vision of AudioMob
- Embody a long-term design vision and collaborate with the marketing and engineering team to set up a metric-based design framework

Nice to have:
- Advanced knowledge of the mobile gaming ecosystem
- Experience working in a scale-up environment

Benefits:
- Equity up to 100% of your base salary
- 100% paid maternity - 26 weeks
- Flexible working hours
- Private healthcare and dental
- Gym subsidy
- Lunch card
- Mental health service
- Development allowance - up to £1,000
- Volunteer days -up to 5 volunteer days a year
- Financial planning sessions
- Birthday off - and have a voucher on us
- Life insurance cover
- Company phone

We're building a diverse, inclusive team:
Diversity and representation matters to us. While the forward journey of representation in the game and tech sectors is going in the right direction, on the whole, there remains much to be done. We know that the future we want to see should be reflected in our own team and values. As such, we encourage applicants from all backgrounds to apply, and welcome those that believe diversity in all its forms is a key driver of success.

Contact the job poster

Tanishia Evans
Talent Partner at AudioMob via ...
London, England, United Kingdom

PREMIUM
Send InMail

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Head Of Design, Abu Dhabi, United Arab Emirates

Set alert

Pay range unavailable

Salary information is not available at the moment.

Are you interested in salary information for this job? Yes / No

Featured benefits

Inferred from the description for this job

Paid maternity leave | Medical insurance | Dental insurance

About the company

AudioMob
5,295 followers

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Marketing & Advertising • 2-10 employees • 20 on LinkedIn

AudioMob is a completely new way to monetise mobile games.
We offer non-intrusive audio ads that can be listened to in game and can greatly increase player retention, generate better reviews, all while providing developers with monetisation. Bui ...show more

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3D Visualization Specialist

Peec Automotive · Dubai, United Arab Emirates (On-site) 2 weeks ago · 36 applicants

Part-time

1-10 employees

See recent hiring trends for Peec Automotive. Try Premium for free

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About the job

Peec Automotive is a start-up based out of the UAE and we have a game changing technology that is providing a real solution to the climate change problem the world is facing. Our product is focused on helping accelerate the adoption of electric vehicles globally, especially to the masses, and we do this by repurposing existing internal combustion engine vehicles to electric.

We are currently seeking an innovative and artistic 3D Visualization Specialist for to help us portray our vision and products in a visual form .

Responsibilities:

- Showcasing automotive designs with photorealistic digital renderings and compelling visualization;
- Processing data, creating digital design presentations, and supporting VR real-time 3D visualization for internal reviews and external communications;
- Supporting a broad range of Interior, Exterior and Color design programs;
- Interpreting ideas and storyboards to create visually effective animation and simulation.

Qualifications:

Contact the job poster

Zach Faizal
Repurposing Mobility
Dubai, United Arab Emirates

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- Bachelor's degree in design, visual communications, or related artistic discipline;
- Minimum 3+ years professional visualization experience using VRED;
- Experience using 3D computer graphics software (ex. Maya, Blender, Bunkspeed, etc.);
- Experience with UI/UX design for Augmented Reality or Virtual Reality a plus.

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Specialist, Dubai, United Arab Emirates

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Pay range unavailable

Salary information is not available at the moment.

Are you interested in salary information for this job? Yes / No

About the company

Peec Automotive

1,595 followers

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Automotive • 2-10 employees • 1 on LinkedIn

Peec is a tech-sustainability start-up, based out of the UAE, with a large vision of providing the world with a unique solution to help accelerate the adoption of EV's globally.

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Senior Unity Developer

Toptal · Dubai, Dubai, United Arab Emirates (Remote) 12 hours ago · 2 applicants

Contract · Mid-Senior level

1,001-5,000 employees · Internet

Actively recruiting

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About the job

About The Job

Toptal developers work with speed and efficiency to deliver the highest quality of work. We are looking for someone who is passionate about their client's business, and ready to work on exciting projects with Fortune 500 companies and Silicon Valley startups, with great rates and zero hassles. If you are looking for a place to advance your career, enhance your skill set, and build connections around the globe, Toptal is right for you.

About Toptal

Toptal is an exclusive network of top freelancers from around the world. Fortune 500 companies and Silicon Valley startups hire Toptal for their most important projects. Toptal is one of the fastest-growing fully remote networks and empowers freelance software developers, designers, finance experts, product managers, and project managers worldwide to grow and excel in their freelance careers.

Toptal clients vary in sizes and industries, from enterprise

We are seeking a developer responsible for building games for various target platforms based on the Unity framework. Your primary responsibilities will be to implement game functionality translating design ideas, concepts, and requirements into a functional and engaging game. A commitment to collaborative problem solving, sophisticated design, and a quality product are essential.

Requirements

- English language proficiency
- 3+ years of professional experience in software development
- Excellent knowledge of Unity, including experience with scripting, textures, animation, GUI styles, and user session management
- Familiarity with level design and planning
- Experience with game physics and particle systems
- Experience with mobile and console game development
- Experience with system architecture or leading a software team is a strong advantage
- Full-time availability is a strong advantage

If you're interested in pursuing an engaging career working on full-time freelance jobs for exclusive clients, take the next step by clicking apply and filling out the short form to get started.

#RemoteJobUnity

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Unity Developer, Dubai, Dubai, United Arab Emirates

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Pay range unavailable

Salary information is not available at the moment.

Are you interested in salary information for this job? Yes / No

About the company

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1 of 8

Toptal is a network of the world's top talent in business, design, and technology that enables companies to scale their teams, on demand. With $200+ million in annual revenue and over 40% year-over-year growth, Toptal is the largest fully distributed workforce in the world.

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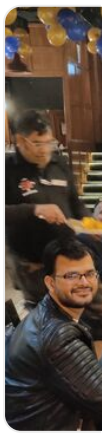

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Dubai, United Arab Emirates
2 months ago • Apply easily

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Senior / Principal Golang Engineer
Halian Middle East
Dubai, United Arab Emirates
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2 days ago

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Unity Game Developer

PLUM JOBS · Dubai, Dubai, United Arab Emirates (On-site) 1 month ago · 18 applicants

Full-time · Associate

1-10 employees · Staffing & Recruiting

See how you compare to 18 applicants. Try Premium for free

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About the job

Our client is a software development company specializing in interactive technology. As part of their growth, we are recruiting an experienced Unity developer who is available immediately to join their Dubai based team.

The successful candidate will be responsible for developing 3D simulation and Augmented Reality / Virtual Reality apps.

Candidates must be highly skilled in computational geometry and 3D / mathematical algorithms with strong experience in game engines.

Role Summary

- Software development and implementation of real-time 3D AR/VR user interfaces.

Mandatory Skills & Experience

- 3+ years' experience in Unity 3D and AR / VR graphics and programming projects.
- Proficient C# coding for Unity 3D.
- Strong knowledge of object-oriented programming and design patterns and Agile software development.
- Implementation experience of interactive graphical characters using Unity 3D.

- Fluent in English.
- Excellent interpersonal, communication and presentation skills.

Education

- Bachelor's degree in Computer Science, Computer Programming or Information Technology

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Set alert for similar jobs

Game Developer, Dubai, Dubai, United Arab Emirates

Set alert

Pay range unavailable

Salary information is not available at the moment.

Are you interested in salary information for this job? Yes / No

About the company

PLUM JOBS

136,040 followers

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Staffing & Recruiting • 2-10 employees • 48 on LinkedIn

HR Advisory

We work with business leaders to deliver strategic HR which enables to improve their organizational effectiveness, attract, engage and retain high performance talent ...show more

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Appendix E – Student Demand Survey

-- Content Blocked --

Add Question

The VCU School of the Arts is considering the creation of a Bachelor of Fine Arts (BFA) degree program in Emerging Media and Technology. The proposed program would be available to students at the Doha, Qatar Campus. The proposed program offers students a broad curriculum for arts and design in Digital Fluency and Information, Communication & Technology literacy skills that encompass a range of competencies from related Science, Technology, Engineering and Mathematics fields. Students will engage with topics such as immersive technology, computation, artificial intelligence, game design, and data-driven design to facilitate the acquisition of the transversal skills currently demanded by the job market in the creative industries The program is a 120-credit hour program, consisting of 54 credit hours of core courses in the major with 15 credits hours of electives after students have completed their general education requirements.

The survey does not collect any personally identifiable information and responses are anonymous. Please read the information below and complete the following questions to help us gauge interest in this program. The survey closes on Friday, October 1. Thank you very much for your time and support. Please start with the survey now by clicking on the Start button below.

Intended learning outcomes

Upon completion of the B.F.A. degree program in Emerging Media and Technology, students will be able to:

- Work proficiently with technology and software related to emerging media including, motion, sound, interaction, and computation.
- Explore new potentials of emerging media and technology through creative experimentation and the design and production of creative artifacts.
- Produce creative works within the combined areas of video and animation, sound, and computational and interactive media that are relevant to contemporary discourse in art and design.
- Communicate both in an oral and written context regarding the significance of their work and its relevance to contemporary and future issues.
- Speculate on the future of communities, cultures, and economies, in order to explore the implications of a variety of media and technologies.
- Develop material relevant to professional practice in order to prepare to pursue a career trajectory. This may include developing the following: Resume/CV, Artist statement, portfolio website, grant proposal, residency application, entrepreneurial project pitch/presentation, exhibition applications, client service contracts, graduate school applications.

Add Question Remove Page Break Separator

1. If VCU offered a B.F.A. in Emerging Media and Technology, how likely or unlikely are you to enroll?

- Very likely
- Likely
- Neither Likely or Unlikely
- Unlikely
- Very unlikely

Add Question Page Break Separator

2. What is your academic standing?

- Freshman (First-year student)
- Sophomore (Second-year student)
- Other

Add Question Page Break Separator

3. I am a student on the following campus:

- Doha, Qatar
- Richmond, VA

Add Question Page Break Separator

4) What year do you expect to complete the Art Foundations program?

- Fall 2022
- Spring 2023
- Fall 2023
- Spring 2024
- Fall 2024
- Spring 2025

Add Question Page Break Separator

5. What year to you expect to complete your baccalaureate degree program?

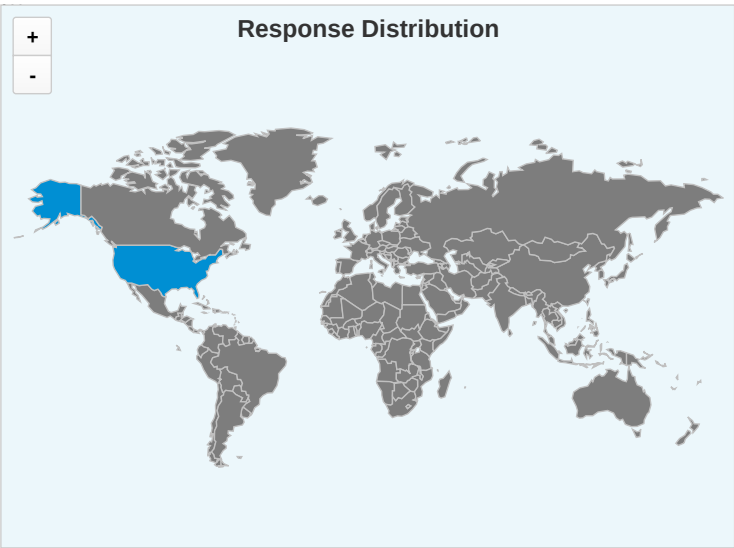
- Fall 2024
- Spring 2025
- Fall 2025
- Spring 2026
- Fall 2026
- Spring 2027

Add Question Page Break Separator

Edit Footer Thank You Page

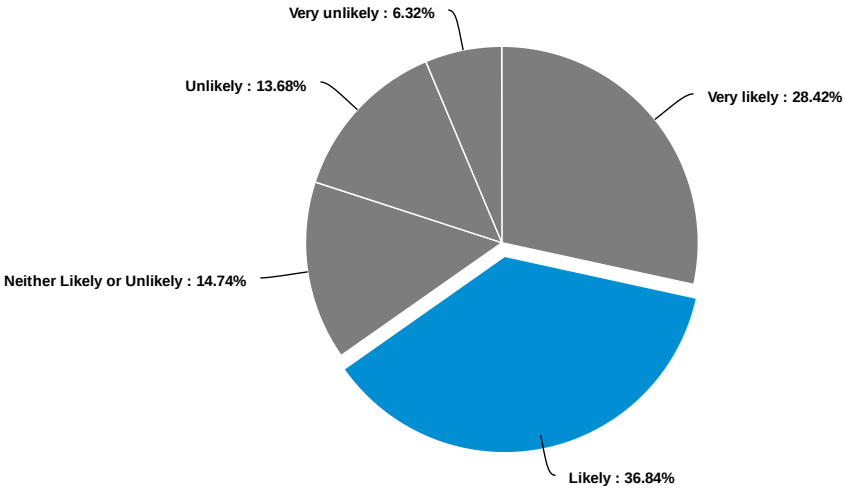
My First Survey - Dashboard

276	118	95	80.51%	23	1 min
Viewed	Total Responses	Completed	Completion Rate	Dropouts	Average Time



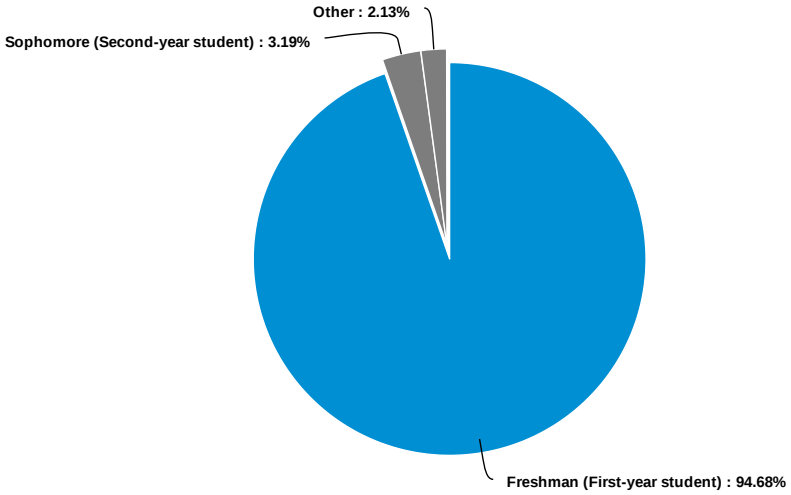
Countries	Responses
QA	96.61%
US	2.54%
MV	0.85%
Total	100.00%

1. If VCU offered a B.F.A. in Emerging Media and Technology, how likely or unlikely are you to enroll?



Answer	Count	Percent	20%	40%	60%	80%	100%
Very likely	27	28.42%					
Likely	35	36.84%					
Neither Likely or Unlikely	14	14.74%					
Unlikely	13	13.68%					
Very unlikely	6	6.32%					
Total	**95**	**100%**					

2. What is your academic standing?

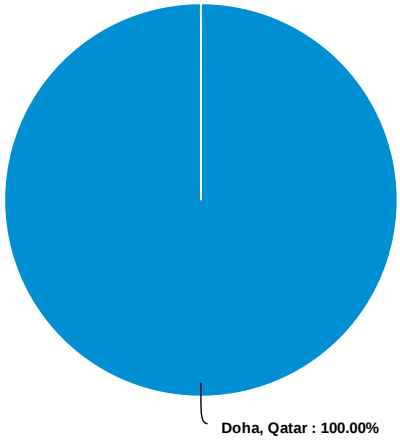


Answer	Count	Percent	20% 40% 60% 80% 100%
Freshman (First-year student)	89	94.68%	
Sophomore (Second-year student)	3	3.19%	
Other	2	2.13%	
Total	**94**	**100%**	

2. What is your academic standing? - Text Data for Other

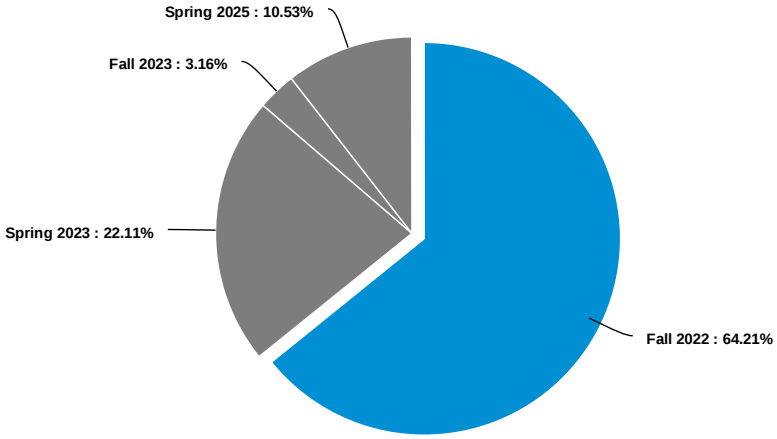
02/01/2022	65432964	Transfer student
11/20/2021	59431208	FYI

3. I am a student on the following campus:



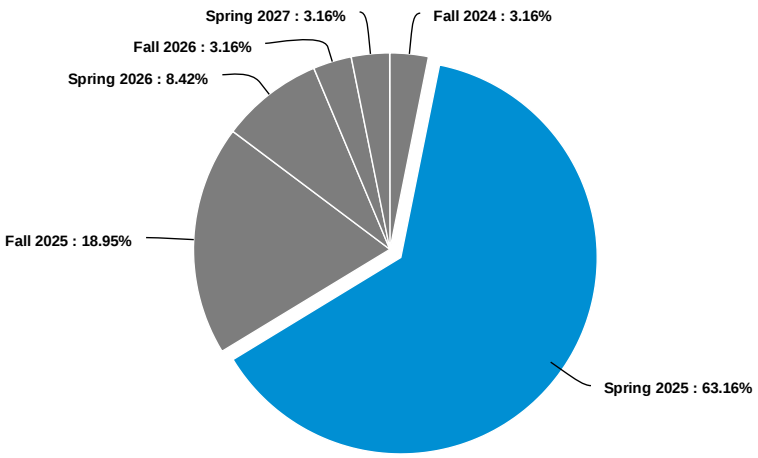
Answer	Count	Percent	20%	40%	60%	80%	100%
Doha, Qatar	95	100%					
Richmond, VA	0	0%					
Total	**95**	**100%**					

4) What year do you expect to complete the Art Foundations program?



Answer	Count	Percent	20%	40%	60%	80%	100%
Fall 2022	61	64.21%					
Spring 2023	21	22.11%					
Fall 2023	3	3.16%					
Spring 2024	0	0%					
Fall 2024	0	0%					
Spring 2025	10	10.53%					
Total	**95**	**100%**					

5. What year to you expect to complete your baccalaureate degree program?



Answer	Count	Percent	20% 40% 60% 80% 100%
Fall 2024	3	3.16%	
Spring 2025	60	63.16%	
Fall 2025	18	18.95%	
Spring 2026	8	8.42%	
Fall 2026	3	3.16%	
Spring 2027	3	3.16%	
Total	**95**	**100%**	

Appendix F – National Association of Schools of Art and Design (NASAD) Guidelines

NATIONAL ASSOCIATION OF SCHOOLS OF ART AND DESIGN

HANDBOOK 2020-21

This text is subject to editorial change and/or correction at any time. The date of the first printing of the NASAD *Handbook 2020-21* appears immediately below along with, if applicable, the date of the latest of any subsequent releases.

Original Publication Date: November 16, 2020
Editorial Changes: June 24, 2021

Readers are encouraged to consult the NASAD website for the latest information concerning policies, procedures, and proposed and/or approved standards revisions.

Institutions undergoing review for accreditation or reaccreditation should refer to the NASAD website for the most recent guidance and procedures for (1) self-study and (2) preparations for an on-site review. Information and all applicable forms and procedures documents can be found under Accreditation Materials within the section of the website titled Accreditation.

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Information contained herein concerning programs, procedures, requirements, standards, and fees is subject to change by the appropriate body of the Association without notice unless required.

The NASAD *Handbook* may be downloaded as a PDF document from the Standards and Guidelines section of the website at no charge.

ISSN 1082-2429

NASAD *Handbook 2020-21*

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FOREWORD

The National Association of Schools of Art and Design is composed of schools and individuals representing the highest traditions and aims in the education of the artist and designer. These members have proven, by the fact of their membership and activity in the organization, their deep interest in fostering high standards for art and design education. Through its annual meetings, NASAD provides a national forum for discussion of the broadest considerations involving the education of the artist and designer. The National Association of Schools of Art and Design has been designated by the U.S. Department of Education as the agency responsible for the accreditation throughout the United States of freestanding institutions, and units offering art/design and art/design-related programs (both degree- and non-degree-granting), including those offered via distance education. The Association also is a member of the Association of Specialized and Professional Accreditors.

A BRIEF HISTORY OF THE ASSOCIATION

In 1944, representatives of art schools met in New York at the Metropolitan Museum of Art by invitation of Mr. Richard F. Bach, then the museum's Dean of Education. Mr. Bach's intention was to focus attention primarily upon the new field of industrial design through the schools that had or could develop design education programs. In his first letter to the schools, he referred to the occasion as a "conference of schools of design." Because of the enthusiastic response of the schools, the meetings were continued on a conference basis until 1948. In that year, it was decided to establish a firm organizational structure and to use the meetings as opportunities to visit schools as well as to exchange ideas and consider the broad problems in art and design education.

The organization thus formed was called the National Association of Schools of Design with the following 22 schools as charter members: Auburn University, University of Alabama, Akron Art Institute, School of the Boston Museum of Fine Arts, Carnegie Institute of Technology, School of the Art Institute of Chicago, Cincinnati Art Academy, University of Cincinnati, Cleveland School of Art, Cooper Union, University of Illinois (Urbana), Kansas City Art Institute and School of Design, Maryland Institute, Massachusetts School of Art, Minneapolis School of Art, Moore Institute of Art, Philadelphia Museum School of Industrial Art (now part of The University of the Arts), Pratt Institute, Rhode Island School of Design, Syracuse University, Washington University, and School of the Worcester Art Museum.

The name of the Association was changed in 1966 to the National Association of Schools of Art, and in 1981, to the National Association of Schools of Art and Design, to reflect more accurately the broad interests of the growing organization. The membership now consists of leading art and design schools, college and university art and design departments, and artists and designers from all regions of the United States. This group has assumed increasing responsibility for the development of educational standards in art and design, and has contributed greatly to the feeling of mutual understanding and respect that now exists among schools and departments of art and design throughout the country.

The Association is governed by an elected Board of Directors representing the public interest and all the interests of the Association.

THE AIMS AND OBJECTIVES OF THE ASSOCIATION

Broadly stated, the aims and objectives of the National Association of Schools of Art and Design are as follows:

1. To establish a national forum to stimulate the understanding and acceptance of the educational disciplines inherent in the creative arts in higher education in the United States.

2. To establish reasonable standards centered on the knowledge and skills necessary to develop academic and professional competence at various program levels.

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3. To foster the development of instruction of the highest quality while simultaneously encouraging varied and experimental approaches to the teaching of art and design.

4. To evaluate, through the process of accreditation, schools of art and design and programs of studio instruction in terms of their quality and the results they achieve, as judged by experienced examiners.

5. To assure students and parents that accredited institutions offering art and design programs provide competent teachers, adequate physical plant and equipment, and sound curricula, and are capable of attaining their stated objectives.

6. To counsel and assist schools in developing their programs and to encourage self-evaluation and continuing studies toward improvement.

7. To invite and encourage the cooperation of professional art and design groups and individuals of reputation in the field of art and design in the formation of appropriate curricula and standards.

8. To establish a national voice to be heard in matters pertaining to the visual arts and design, particularly as they would affect member schools and their stated objectives.

ARTISTIC AND ACADEMIC QUALITY

In the context of educational institutions, artistic and academic qualities are:

1. Developed primarily by individual students, faculty, and administrators.

2. Produced by focusing on one or more disciplines, bodies of content, or processes.

3. Enabled by fundamental capabilities, clear purposes, high aspirations, and sufficient time and supporting resources.

4. Exemplified in a work or works in one or more disciplines.

5. Evaluated in terms of past and current exemplary work in one or more fields.

6. Presented institutionally and programmatically when individuals achieve at high levels consistently over long periods.

Accreditation and other services of NASAD support artistic and academic excellence with:

1. Threshold standards that define the fundamentals of quality and thus provide a framework supporting specific institutional and individual purposes.

2. Review procedures that evaluate relationships among purposes, art/design and other disciplines, capabilities, aspirations, and resources, all in the context of each institution's mission and achievements.

3. An approach that encourages connections and integrations between artistic and academic achievement.

4. A philosophy that promotes creativity in the definition, pursuit, and evaluation of artistic and academic quality.

THE ASSOCIATION'S ROLE AS A SPECIALIZED, PROFESSIONAL ACCREDITING AGENCY

NASAD recognizes the need to find ways of clarifying and maintaining standards in art and design through the responsible education of artists and designers. By means of accreditation, it can encourage those institutions that consistently give students a sound basis for significant future accomplishments in art and

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design. Accreditation also imposes on those institutions the responsibility for continual effort to strengthen art and design education in general–in both accredited and not-yet-accredited schools. In addition, it provides a basis for public recognition of an institution's quality.

The acceptance of NASAD as the only recognized accrediting agency covering the whole field of art and design has placed upon the Association the following responsibilities: maintenance of high educational standards; safeguarding the profession against inadequately prepared educators and practitioners; dissemination of information on accreditation to institutions, counselors, teachers, parents and students; guarding against improper noneducational pressures of individuals and institutions; and consideration of other important educational problems and issues. The Association recognizes and accepts these responsibilities.

In 1970, two divisions of accredited membership were organized. Division I membership included degree-granting schools and departments whose predominant purpose and enrollment was professional education in the studio arts and/or design. Division II membership included degree-granting schools and departments whose predominant purpose and enrollment was quality education in the studio arts and/or design as a curricular majors within a general liberal arts program.

In 1980, Division III was added for non-degree-granting schools whose predominant purpose and enrollment was professional education in the studio arts and/or design.

In 1985, the membership voted to eliminate divisional status. Institutions are now categorized as not-for-profit or proprietary, private or public, and degree-granting and/or non-degree-granting.

The Association also maintains categories of affiliation for non-accredited institutions, individuals, and professional organizations.

STANDARDS FOR ACCREDITATION

I. BASIC CRITERIA FOR MEMBERSHIP

A. Non-Degree-Granting Institutions

The National Association of Schools of Art and Design accredits non-degree-granting institutions. Programs in these institutions may or may not lead to a professional diploma or certificate. The primary purpose of all such schools should be to provide the best possible environment for the artistic growth of their students. Such an environment should foster an understanding of the arts and their contribution to society.

Unless specified otherwise below, regardless of institutional type, the composite institution offering non-degree-granting programs must meet the following Basic Criteria for Membership:

1. The institution shall maintain a curricular program in studio art or design at various levels according to the needs of its students.

2. The institution shall offer, as part of its regular program, studies reflecting attention to such areas as art/design history and criticism. Such studies may be in addition to, or in conjunction with, studio studies.

3. The institution offering postsecondary professional education and training programs must offer at least one non-degree curricular program at the undergraduate level requiring at least 30 semester hours or the equivalent, or one non-degree curricular program at the graduate level requiring at least 15 semester hours or the equivalent. Such institutions shall offer at least one curricular program that meets all appropriate standards that (a) has been completed by students, (b) has an enrollment of at least three students, and (c) is progressing students toward completion.

4. The institution shall have been in operation for at least three consecutive years and shall maintain its programs on a regular academic-year or year-round basis.

5. The institution's legal authority shall be stated clearly in its published materials as identified by its charter, authority to offer curricular programs, structure of control, profit or non-profit status, and affiliation, if any, with a parent or sibling organization.

6. All policies regarding the admission and retention of students, those pertaining to the school's evaluation of progress through its educational program, as well as those concerning the operation of certificate or diploma programs, shall be clearly defined in literature published by the institution.

7. All tuition, fees, and other charges, as well as all policies pertaining thereto, shall be clearly described in the institution's published literature.

8. Faculty members shall be qualified for their specific teaching assignments by educational background and/or professional experience. The institution shall list its faculty in its published literature.

9. The institution shall provide in its institutional catalog a complete description of each course or program offered.

10. Although only federal and state governments shall have legal jurisdictional powers and responsibilities in matters of public law, the institution should develop an appropriate code of ethical standards governing institutional and programmatic practices that recognizes social concerns relevant to quality education.

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11. The institution shall have facilities and equipment adequate to the needs of its educational program.

12. The institution shall have either library space or holdings adequate for its educational programs, or shall have made arrangements for its students and faculty to have access to appropriate library facilities in the immediate area.

13. The institution demonstrates commitment to a program of continuous self-evaluation.

14. The institution shall be licensed or chartered to operate as required by local and state legal codes. The institution shall meet all legal requirements to operate wherever it conducts its activities. Multipurpose institutions offering programs in art and design and in other disciplines shall be accredited by the appropriate regional or institutional accrediting agency, unless such accreditation is not available.

15. The institution shall provide (or, in the case of foreign studies programs, be responsible for) all coursework or educational services to support its educational programs, or demonstrate that any cooperative or contracted coursework or educational services are provided by an outside institution or organization having accreditation as an entity by a nationally recognized accrediting agency.

NASAD recognizes that the terms *diploma* and *certificate* are used for the recognition of collegiate-level work.

B. Degree-Granting Institutions

The National Association of Schools of Art and Design recognizes many types of programs in degree-granting institutions. The primary purpose for all institutions, whatever types of programs they offer, should be to provide the best possible environment for education and training in the visual arts and design. Such an environment should foster an understanding of the arts and design, and an attitude of respect for their potential contribution to society.

Applicants for accreditation as degree-granting members are two-year, four-year, or five-year undergraduate or graduate-level institutions. Accredited members shall meet the following Basic Criteria for Membership:

1. The institution shall maintain a curricular program of education and training in the visual arts or design.

2. The institution shall offer at least one complete curriculum (e.g., Bachelor of Fine Arts, Bachelor of Arts with major in Art, et al.) or shall provide the visual arts/design component of a degree program offered in conjunction with an accredited degree-granting institution, that meets all applicable standards.

3. Undergraduate degree-granting institutions shall have graduated from at least one curricular program that meets all applicable standards, at least one class of students with a minimum of three students, and another class shall be in readiness subject to examination.

4. Institutions offering one or more graduate programs as their only degree programs shall have graduated at least two students from at least one graduate program that meets all applicable standards, and shows evidence of continuing enrollment. If institutions offer undergraduate and graduate programs, graduate programs must have graduate students matriculated or in residence, or have received Plan Approval from the Commission on Accreditation.

5. The institution's legal authority shall be stated clearly in its published materials as identified by its charter, authority to grant degrees, structure of control, profit or non-profit status, and affiliation, if

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any, with a parent or sibling organization.

6. All policies regarding admission and retention of students, as well as those pertaining to the school's evaluation of progress, shall be clearly defined in literature published by the institution.

7. All tuition, fees, and other charges, as well as all policies pertaining thereto, shall be clearly described in the institution's published literature.

8. Faculty members shall be qualified for their specific teaching assignments by educational background and/or professional experience. The institution shall list its faculty in its published literature.

9. The institution shall have facilities and equipment commensurate with the needs of its educational program.

10. The institution shall have library space and resources commensurate with the needs of its educational program.

11. The institution demonstrates commitment to a program of continuous self-evaluation.

12. The institution shall be licensed or chartered to operate as required by local and state legal codes. The institution shall meet all legal requirements to operate wherever it conducts its activities. Multipurpose institutions offering degrees in art and design and/or in other disciplines shall be accredited by the appropriate regional or institutional accrediting agency.

13. The institution shall provide (or, in the case of foreign studies programs, be responsible for) all coursework or educational services to support its educational programs, or demonstrate that any cooperative or contracted coursework or educational services are provided by an outside institution or organization having accreditation as an entity by a nationally recognized accrediting agency.

II. PURPOSES AND OPERATIONS

NOTE: In addition to the standards in the Standards for Accreditation, Section II., (1) free-standing art and design institutions of higher education that offer professional education and training in art and/or design that designate NASAD as their gatekeeper for the purpose of participation in federal financial aid programs are reminded that Standards for Accreditation XX. apply and must be addressed, and (2) proprietary schools must demonstrate compliance with Standards for Accreditation XXI.

A. Purposes of the Institution and Art/Design Unit

1. Standards

a. Each institution chooses the specific terminology it uses to state its purposes. Although terms such as *vision*, *mission*, *goals*, *objectives*, and *action plans* are widely used, specific terminologies and the structures they imply are not required.

b. There must be one or more statements indicating overall purposes. For independent art/design institutions, at least one statement must apply to the institution as a whole. For multi-purpose institutions, at least one statement must apply to the institution and at least one statement must apply to the art/design unit.

c. In multipurpose institutions, the overall purposes of the art/design unit must have a viable relationship to the purposes of the institution as a whole.

d. Specific degrees or other educational programs in art/design, including research institutes,

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museums, and other specific components shall have purposes consistent with the purposes of the entire art and design program and of the institution as a whole. Standards regarding purposes for specific curricular programs are found in the standards for undergraduate (see Standards for Accreditation IV.), graduate (see Standards for Accreditation XIV.), and non-degree-granting programs (see Standards for Accreditation XVIII.).

e. Statements regarding overall purposes for art/design and art/design study must:

(1) Indicate that fundamental purposes are educational.

(2) Encompass and be appropriate to the level(s) of curricular offerings.

(3) Reflect and remain consistent with specific institutional and programmatic responsibilities and aspirations for art/design and art/design study.

(4) Be compatible with NASAD standards.

(5) Be published and made available in one or more texts appropriate for various constituencies, including the general public.

(6) Guide and influence decision-making, analysis, and planning, including each of these as they shape and fulfill relationships among curricular offerings, operational matters, and resources.

(7) Be fundamental in determining the extent to which policies, practices, resources, and curricular and other program components have sufficient conceptual, structural, and operational synergy to achieve stated expectations for art/design and art/design study.

2. Guidelines, Recommendations, and Comment

a. There are numerous specific definitions of common terms, but usually:

(1) *Purposes* is a generic term referring to statements that when reviewed together, define the special, perhaps unique, function of an institution or program in the larger context of educational and artistic endeavor.

(2) *Vision statements* normally define what an entity aspires to be and often, whom it intends to serve.

(3) *Mission statements* articulate broad connections between the institution's efforts in art/design and the world of art/design and intellect.

(4) *Goals* are broad statements of aim, the specific needs toward which efforts are directed, normally less remote and more definitive than mission.

(5) *Objectives* are the specific steps for reaching goals, normally measured in time among other indicators.

(6) *Action plans* are specific means for achieving objectives, normally measured in dollars among other indicators.

b. Areas normally addressed in statements of purposes may include, but are not limited to:

(1) Specific art/design and art/design-related fields.

(2) Students to be served.

(3) Learning.

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(4) Teaching.

(5) Creative work and research.

(6) Service.

(7) Exhibition.

(8) The policies and resources needed for effectiveness in these areas.

c. To guide and influence the work of an art/design unit, statements of purposes are normally the basis for:

(1) Creating a common conceptual framework for all participants.

(2) Making educational and artistic decisions.

(3) Long-range planning, including the development of new curricula, innovative activities, expansion or reduction of programs or enrollments.

(4) Operational decisions, including admission practices, selection of faculty and staff, allocation of resources, evaluation, and administrative policies.

d. Structural and operational synergy among components may be achieved in part by:

(1) Stating specific goals for student learning in terms of artistic and academic achievement at levels of detail appropriate to each statement of purpose.

(2) Making student learning, in terms of artistic and academic achievement, the primary basis for decisions about resource and other operational and evaluative matters.

(3) Planning and acting with informed analysis and judgment about the symbiotic relationships among all components of the art/design unit, including the potential impact of specific decisions on specific components and on the achievement of purposes.

e. When considering purposes, it is useful for most institutions to consider standards and guidelines on evaluation, planning, and projections (see Standards for Accreditation II.L.).

B. Size and Scope

1. Standards. Institutions shall maintain sufficient enrollment to support the specific programs offered including:

a. An appropriate number of faculty and other resources.

b. Sufficient advanced courses in art and design appropriate to major areas of study at degree or program levels being offered.

2. Guidelines

a. Institutions are expected to demonstrate a positive and functioning relationship among the size and scope of art/design programs, the goals and objectives of these programs, and the human, material, and fiscal resources available to support these programs.

b. The study of art/design normally requires opportunities for interaction with other art/design students and professionals. In academic settings, this interaction is critical not only in studio work, but also in the development of all types of art/design knowledge and skills.

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C. Finances

1. Standards

a. Financial resources shall be adequate in terms of:

(1) The purposes of the art/design unit and each of the specific degrees or programs it offers.

(2) The size and scope of the art/design unit.

b. Budget allocations for personnel, space, equipment, and materials must be appropriate and sufficient to sustain the programs offered by the art/design unit from year to year.

c. Evidence must be provided demonstrating that financial support is sufficient to ensure continued operation of the art/design unit and its programs in accordance with applicable NASAD standards for the projected period of accreditation.

d. The institution shall publish all regulations and policies concerning tuition, fees, and other charges, and shall develop a tuition refund policy that is equitable to both the institution and the student.

e. The institution shall maintain accurate financial records according to legal and ethical standards of recognized accounting practice.

(1) For privately supported institutions, this means an annual audit with opinion of financial statements prepared by an independent certified public accountant. Such audit is normally completed within 120 days, and must be completed within 180 days, after the close of each fiscal year.

(2) For tax-supported institutions, this means a periodic audit with opinion of financial statements or a review as mandated by the legislative or executive branch of the government entity supporting the institution.

f. The audited financial statements of the institution shall reveal sound financial management in support of the educational program.

g. Evidence of past and potential financial stability and long-range financial planning must be demonstrated.

2. Guideline and Recommendation

a. Student learning and health and safety are paramount considerations in determining and evaluating financial support.

b. Financial planning, especially for the long-term, should be correlated with current and evolving purposes and content of the art/design unit and its programs.

D. Governance and Administration

1. Standards

a. Governance and administrative structures and activities shall:

(1) Serve and work to fulfill the purposes of the institution and the art/design unit.

(2) Assure fundamental educational, artistic, administrative, and financial continuity and stability, and show evidence of long-range planning.

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(3) Include a board of trustees with legal and financial responsibilities and adequate public representation.

(4) Exhibit relationships among trustees, administration, faculty, staff, and students that demonstrate a primary focus on support of teaching and learning:

(a) The trustees are legally constituted to hold the property, assets, and purposes of the institution in trust with responsibility for sustaining the institution and exercising ultimate and general control over its affairs.

(b) The administration is empowered by the trustees to operate the institution, provide optimum circumstances for faculty and students to carry out these purposes, and provide effective communication channels both inside and outside the institution.

(c) The faculty has a major role in developing the artistic and academic program and in evaluating and influencing the standards and conditions that pertain directly to instruction, creative work, and research.

(d) Student views and judgments are sought in those matters in which students have a direct and reasonable interest.

b. The governance and administrative relationships of each organizational component of the institution, including the process by which they function and interrelate, shall be stated clearly in written form.

(1) Administrators, faculty, and staff shall understand their duties and responsibilities and know the individuals to whom they are responsible.

(2) The art/design executive's responsibilities shall be clearly delineated and executive authority shall be commensurate with responsibility.

(3) The art/design unit shall have reasonable and sufficient autonomy commensurate with its purposes.

(4) In multidisciplinary institutions, the art/design unit must have adequate representation to deliberative bodies whose work has an impact on the educational and artistic endeavors and results of the art/design unit.

c. The administration of the art/design unit must provide mechanisms for communication among all components of the unit.

d. The institution shall provide the art/design executive and other administrators of specialized areas sufficient time and staff to execute the required administrative and/or teaching duties effectively.

2. Guideline and Recommendation

a. Normally, the art/design executive exercises leadership in program evaluation and planning, encourages faculty development, and promotes among all faculty and staff a spirit of responsibility, understanding, and cooperation.

b. The art/design executive should nurture an environment that contributes to the art/design unit's pursuit of its artistic, intellectual, and educational purposes.

c. Written descriptions of governance and administrative relationships should be publicly available.

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E. Faculty and Staff

1. Qualifications

a. Standards

(1) The institution shall maintain faculties and staff whose aggregate individual qualifications enable the art/design unit and the specific educational programs offered to accomplish their purposes.

(2) Faculty members (including part-time faculty and graduate teaching assistants, as applicable) shall be qualified by earned degrees and/or professional experience and/or demonstrated teaching competence for the subjects and levels they are teaching.

(3) All faculty must be able to guide student learning and to communicate personal knowledge and experience effectively.

(4) Faculty members teaching graduate-level courses must represent the professional standards to which graduate students aspire in specific fields and specializations.

(5) It is essential that a significant number of faculty members teaching graduate-level courses be active, or have been active, in presenting their work to the public as scholars or professional artists or designers.

b. Guidelines, Recommendation, and Comment

(1) Standards for Accreditation II.E.1.a. apply to studies and coursework offered at the institution or under cooperative arrangements with another educational or artistic institution, or in any other third-party arrangement.

(2) Teachers of any studio subject normally are or have been deeply involved as practicing artists or designers in the particular disciplines or specializations they are teaching.

(3) NASAD recognizes the Master of Fine Arts as the appropriate terminal degree for studio faculty. At the same time, the Association recognizes that some highly qualified artist-teachers may hold other academic degrees; others may not hold any academic degrees. In such cases, the institution should base appointments on experience, training, and expertise at least equivalent to those required for the Master of Fine Arts degree in the appropriate field.

(4) Academic degrees are a pertinent indicator of the teacher's qualifications for instructing in theoretical, historical, and pedagogical subjects. In general, the Doctor of Philosophy and comparable doctorates are the appropriate terminal degrees in these fields; however, creative work, research, and publication are indicators of a teacher's qualifications, productivity, professional awareness, and contribution to various aspects of art/design and art/design-related fields.

2. Number and Distribution

a. Standards

(1) The number and ratio of full- and part-time faculty positions, and their distribution among the specializations, must be (a) sufficient to achieve the art/design unit's purposes, (b) appropriate to the size and scope of the art/design unit's programs, and (c) consistent with the nature and requirements of specific programs offered.

(2) The institution must have clear, published definitions of any faculty classifications in use

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(for example, tenured, graduate, full-time, part-time, adjunct, and visiting).

(3) An institution shall distinguish in its printed literature between curricular and workshop faculty. For these purposes, curricular faculty shall be defined as those employed to teach on a regularly scheduled basis (at least biweekly) throughout an academic program of study.

b. Recommendation. Multiple faculty involved in any specific area of specialization should represent a diversity of background and experience in their field of expertise.

3. Appointment, Evaluation, and Advancement

a. Standards

(1) The institution and art/design unit must have procedures for appointing, evaluating, and advancing art/design faculty that promote objectivity and that ensure appropriate connections between personnel decisions and purposes, especially as aspirations and purposes concern teaching, creative work, exhibition, research, scholarship, and service.

(2) The institution must have procedures for the regular evaluation of all faculty.

(3) Creative activity and achievement and exhibition must be regarded as being equivalent to scholarly efforts and publication in matters of appointment and advancement when the institution has goals and objectives for the preparation of professional artists and designers.

b. Guidelines and Recommendation

(1) Effective and fair evaluation of faculty is based on clear and accurate statements regarding responsibilities and expectations made at the time of employment and subsequently.

(2) Normally, the particular arrangement of elements and perspectives used to determine the quality of faculty work are considered and articulated as clearly as possible for each faculty and staff member, especially at the time of appointment.

(3) Normally, art/design faculty holding appropriate credentials and having full-time appointments are entitled to full faculty status and given treatment comparable to that for faculty members in other disciplines on a given campus with regard to appointment, tenure, increases in salary, and advancement to higher academic rank.

(4) Creative work in art/design should be accepted as equivalent to scholarly publication or research as a criterion for appointment and advancement in all institutions.

4. Loads

a. Standards

(1) Faculty loads shall be such that faculty members are able to carry out their responsibilities effectively.

(2) Faculty members, according to their title and job description, shall have adequate time to provide effective instruction; advise and evaluate students; supervise projects, research, and dissertations; continue professional growth; and participate in service activities.

b. Guidelines, Recommendations, and Comment

(1) Institutions use a variety of methods for calculating teaching loads. The choice of method

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is the prerogative of the institution.

(2) Policies concerning loads should be clearly developed and published with regard to the variety of educational, artistic, and administrative duties undertaken by art/design faculty, and any conversions between clock hours and credit hours.

(3) In studio/laboratory courses, normally 3 hours of studio/laboratory time and space per credit hour are required.

(4) Art/design faculty teaching only classroom/seminar courses should have their load determined in the same way as faculty in other departments of the institution.

(5) All faculty should have sufficient time for artistic, scholarly, and professional activity in order to maintain excellence and growth in their respective areas of expertise.

(6) Normally, the teaching loads of those having administrative and/or consultative duties are appropriately reduced.

5. Student/Faculty Ratio

a. Standard. The student/faculty ratio must be consistent with the size, scope, goals, and the specific purposes and requirements of the art and design programs offered.

6. Class Size

a. Standards

(1) Class size shall be appropriate to the format and subject matter of each class, with regard to such considerations as:

(a) Space, materials, and equipment requirements;

(b) Safety; and

(c) The balance between student and faculty time necessary to accomplish the goals and objectives of the class.

(2) When individual faculty attention to individual student work is required during class, class size shall be such that students can receive regular critiques of meaningful duration during the regular class period.

b. Guidelines

(1) Classes in creative work generally should not exceed 25 students. Experience indicates that a class size of 20 or fewer is educationally more effective. In some cases, safety considerations and specialized equipment limitations will require class limits of fewer than 15.

(2) Effective instruction can be achieved in lecture classes with larger enrollments than are acceptable in studio or seminar courses; however, sound educational practice indicates that such large classes should be supported by small discussion or tutoring sessions, or other opportunities for students to engage in dialogue with the instructor.

7. Graduate Teaching Assistants

a. Standard. The art/design unit must carefully select, train, supervise, and evaluate graduate teaching assistants whenever they are employed.

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b. **Recommendation.** Mentoring programs for graduate teaching assistants are encouraged.

8. **Faculty Development**

a. **Standard.** Institutions and art/design units must encourage continuing professional development, even if funding is limited.

b. **Recommendation and Comment**

(1) Peer mentoring of faculty following their initial appointment is strongly recommended.

(2) Sabbatical or other professional leaves; participation in activities that foster exchanges of ideas; cooperative activities and research; scholarship; and course preparation support are encouraged and should be provided for art/design faculty consistent with support provided to comparable units in the institution.

(3) Whatever the institution's faculty development policies and mechanisms, the primary initiative for professional growth rests with each faculty member.

9. **Support Staff**

a. **Standard.** Support staff shall be provided commensurate with the art/design unit's purposes, size and scope, and its degrees and programs.

b. **Guideline.** Normally, these positions are administered by the art/design unit.

F. Facilities, Equipment, Technology, Health, and Safety

1. **Standards**

a. Facilities, equipment, and technology must be adequate to support faculty needs, all curricular offerings, and all students enrolled in them, and be appropriately specialized for advanced work.

b. Space, equipment, and technology allotted to any art/design unit function must be adequate for the effective conduct of that function.

c. The number of studio and classroom spaces and the amount and availability of equipment must be adequate to serve the scope of the program and the number of students enrolled.

d. Budget provisions shall be made for adequate maintenance of the physical plant and equipment as related to the size, scope, and purposes of course and curriculum offerings, and to conditions related to health and safety.

e. Art/design units with goals and objectives in disciplines and specializations that require constant updating of equipment must demonstrate their capacity to remain technologically current.

f. Students enrolled in art/design unit programs and faculty and staff with employment status in the art/design unit must be provided basic information about the maintenance of health and safety within the contexts of studio practice, exhibition and performance.

For art/design majors and art/design faculty and staff, general topics include, but are not limited to, basic information regarding health and safety issues, hazards, and procedures associated with making and presenting art and design. They also include instruction on the use, proper handling, and operation of potentially dangerous materials, equipment, and technology as applicable to specific program offerings or experiences. Beyond the provision of basic

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general information, and the identification of available resources, decisions regarding topic areas and breadth and depth are made by the institution, and normally are correlated with the nature, content, and requirements of specific areas of specialization or specific courses of study.

For non-majors enrolled in courses offered by the art/design unit, topics chosen are directly related to health and safety issues associated with their specific area of study or activity in art/design.

Art/design program policies, protocols, and operations must reflect attention to maintenance of health and injury prevention and to the relationships among: the health and safety of artists/designers; suitable choices of equipment and technology for various specific purposes; appropriate and safe operation of equipment and technology; and other conditions associated with health and safety in studio and other facilities.

Specific methods of providing information and addressing injury prevention, technology, and facilities are the prerogative and responsibility of the institution.

NOTE: Health and safety depend in large part on the personal decisions of informed individuals. Institutions have health and safety responsibilities, but fulfillment of these responsibilities cannot and will not ensure any specific individual's health and safety. Too many factors beyond any institution's control are involved. Individuals have a critically important role and each is personally responsible for avoiding risk and preventing injuries to themselves before, during, and after study or employment at any institution. The NASAD standards in this section and applicable guidelines below, and institutional actions taken under their influence or independently do not relieve the individual from personal responsibility for appropriate, prudent, and safe behavior or action, nor do they shift such responsibility and liability for the consequences of inappropriate, imprudent, and/or unsafe behavior or action in any instance or over time to any institution, or to NASAD.

g. Ventilation and safety treatments appropriate to art/design facilities shall be provided.

h. All instructional facilities shall be accessible, safe, and secure, and shall meet the standards of local fire and health codes.

i. The institution shall have a plan by which it addresses health and safety issues on a continuing basis.

2. Guidelines and Recommendations

a. Facilities for the instructional and administrative aspects of the art/design program should be sufficiently localized to function cohesively and effectively.

b. Provision should be made for students to have access to adequate studio facilities at other than scheduled class times.

c. Adequate, safe, and secure storage space should be provided for instructional equipment.

d. Adequate office space for faculty and staff should be provided in close proximity to the instructional facilities.

e. There should be appropriate space and equipment for the administrative functions of the program.

f. All facilities and equipment should produce an environment conducive to learning and be sufficient to enable faculty and students to focus on academic and artistic endeavors.

g. Each art/design unit should maintain a plan for the regular maintenance of its facilities and upkeep and replacement of equipment. The plan should be developed consistent with goals and objectives, the size and scope of the art/design unit, and prospective changes.

h. Normally, institutions assist students to acquire knowledge from qualified professionals and authoritative medical sources regarding the maintenance of professional health and injury prevention, and to gain access to such professionals for treatment as may be necessary.

i. Normally, institutions or art/design programs have policies and protocols that maintain strict distinctions between the provision of general art/design-related health information in the art/design program and the specific treatment of individuals by licensed medical professionals.

j. Normally, institutions and art/design units develop their specific methods for addressing health and safety issues in consultation with qualified professionals in the fields of health and safety and any related areas.

G. Library and Learning Resources

NOTE: Standards for Accreditation II.G.1.–G.7. apply to degree-granting institutions. Standards for Accreditation II.G.8. applies only to non-degree-granting institutions.

1. Overall Requirements

a. Standards

(1) The art/design unit shall have library, learning, and information resources necessary to fulfill its purposes and appropriate for the size and scope of its operations.

(2) The institution shall place importance on the development and maintenance of library, learning, and information resources to support its curricula in art and design.

(3) The institution shall have policies concerned with, but not limited to, the following aspects of library operation:

(a) Governance and administration;

(b) Collections and their development;

(c) Personnel services; and

(d) Access, facilities, and finances.

b. Recommendations

(1) The art/design collection should be considered an integral part of the art and design program of the institution.

(2) The policies referred to in Standards for Accreditation II.G.1.a.(3) should support both the number and scope of curricular objectives and should be developed in a manner that demonstrates coordination between the library staff and the art/design faculty.

2. Governance and Administration

a. Standard. The functional position of the art/design collection within the total library structure shall be clearly identified, and the responsibilities and authority of the individual in charge of this collection shall be defined.

b. Recommendation. There should be a close administrative relationship among all libraries

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within the institution so that art/design students and faculty may make the best use of library resources.

3. Collections

a. Standards

(1) The institution must maintain library holdings and/or electronic access to holdings in art/design of sufficient size and scope to complement the nature and levels of the total instructional program in art/design, to provide incentive for individual learning, and to support research appropriate for its faculty.

(2) There shall be evidence that a systematic acquisitions, preservation, and replacement program compatible with appropriate needs has been planned, and that some form of faculty consultation and review is a continuing aspect of this program.

(3) Materials in all formats required for the study of art and design—books, images, digital images, periodicals, microforms, audio and video recordings, and electronic access to other databases—shall be the basis of the acquisitions, preservation, and replacement program.

b. Recommendation and Comment

(1) Whenever possible, cooperative arrangements should be established with information sources outside the institution to augment holdings for student and faculty use.

(2) The books, images, digital images, periodicals, microforms, and audio and video recordings held by the libraries of municipalities, museums, historical societies, and other schools, and access to various electronic databases, can often provide a breadth of coverage far beyond that of the institution.

4. Personnel

a. Standard. The library shall be staffed by professionally qualified personnel sufficient to meet the various needs of the art and design unit.

b. Recommendation. Institutions are encouraged to engage specialized personnel whenever feasible to organize and maintain the art and design holdings.

5. Services

a. Standards

(1) The institution shall maintain appropriate hours of operation for the library.

(2) There must be convenient access to the library holdings in art and design through complete and effective catalogs, indexes, and other appropriate bibliographical tools.

(3) There must be access to the holdings of other institutions through union catalogs, cooperative network facilities, photoduplication, and interlibrary loan.

(4) Instruction in the use of the art/design collection shall be provided.

b. Guideline. Institutions should assist students to develop functional capabilities with regard to library resources including, but not limited to, the use of current tools and technologies necessary to support research and promote inquiry in their chosen field of study.

6. **Facilities**

   a. **Standards**

      (1) The institution shall provide an environment conducive to study.

      (2) The institution shall provide and maintain equipment that allows access to the resources of the library including, but not limited to, audio and video equipment, microfilm units, and computer terminals.

   b. **Guideline.** Normally, facilities are as centralized as possible to provide access to all library holdings devoted to the study of art and design. For example, books, images, and audio and video equipment are located in close proximity for effective use in conjunction with one another.

7. **Finances**

   a. **Standard.** Budgetary support shall be adequate to provide appropriate services, carry out necessary operations, and satisfy stated requirements of the programs offered.

   b. **Recommendations**

      (1) Although fiscal policies may vary among institutions, it is desirable that the allocation for the art/design collection be an explicit element in the institution's library budget. The management of this allocation should be the responsibility of a designated staff person.

      (2) An organized system of involvement by art/design faculty and students should exist to advise the librarian in planning short- and long-range fiscal needs most effectively.

8. **Non-Degree-Granting Institutions**

   a. **Standards**

      (1) Adequate library, learning, and information resources must be readily available to support both the art/design programs offered and the needs of faculty and enrolled students.

      (2) Library materials must be current and relevant to the programs offered.

      (3) Institutions providing access to library facilities off-site must demonstrate that the library used has a collection adequate to support the program, and that policies and procedures for access are appropriate to the needs of the students and faculty.

   b. **Guideline.** Postsecondary non-degree-granting institutions are expected to have library resources and access commensurate with program levels and content.

H. Recruitment, Admission-Retention, Record Keeping, and Advisement

1. **Standards**

   a. Communications with prospective students and parents must be accurate and presented with integrity.

   b. As a matter of sound educational practice, institutions recruit and admit students only to programs or curricula for which they show aptitudes and prospects for success.

   c. Recruitment goals, policies, and procedures shall be ethical, controlled by the institution, compatible with the goals and objectives of the art and design unit, and free of practices that compensate recruiters directly on an individual or aggregate per-student-yield basis or

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otherwise create conflicts of interest for recruitment personnel or the institution.

d. Admissions evaluation procedures and advising services must be clearly related to the goals and objectives of the institution's art and design programs.

e. Admission to particular programs of art/design study must be correlated to the institution's ability to provide the requisite coursework and experiences at the appropriate level for all students enrolled.

f. Student retention policies must be:

(1) Appropriate to the purposes of the institution's curricular programs;

(2) Clearly defined;

(3) Published for students and faculty; and

(4) Applied with rigor and fairness.

g. The institution shall inform a student promptly if it is determined that he or she is not acceptable as a candidate for a degree, certificate, or diploma.

h. The institution shall maintain accurate, up-to-date records of each student's educational progress, including courses taken, grades and/or credits earned, and the results of other appropriate evaluations.

i. Accredited members shall maintain documents pertinent to the awarding of graduate degrees, including theses, scripts, dissertations, and portfolios.

j. Advising must address program content, program completion requirements, potential careers or future studies, and art/design-specific student services consistent with the natures and purposes of visual arts and design degrees and programs being offered. Institutions must provide students with written documents and advising that describe all requirements and the purposes for their programs.

2. Recommendations

a. Students with specific career goals should be engaged in a continuous advisement program related to their area of specialization.

b. Advisement should reflect concern for the goals of each student and should provide assistance with the selection of courses that serve as appropriate preparation for advanced study.

c. Students should have access to information concerning specialization at the graduate level and available career options in art/design.

I. Published Materials and Websites

1. Standards

a. Published materials concerning the institution and the art/design unit shall be clear, accurate, and readily available.

b. A catalog or similar document(s) shall be published at least biennially and shall cover:

(1) Purposes;

(2) Size and scope;

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(3) Curricula;

(4) Faculty;

(5) Administrators and trustees;

(6) Locale;

(7) Facilities;

(8) Costs and refund policies;

(9) Rules and regulations for conduct;

(10) All quantitative, qualitative, and time requirements for admission, retention, and completion of programs and degrees and other credentials;

(11) Descriptions for each course offered;

(12) Academic calendar;

(13) Grievance and appeals procedures; and

(14) Accreditation status with NASAD and other appropriate accrediting agencies (see Rules of Practice and Procedure, Part II, Article XII.).

c. Basic institutional policies for defining a credit hour must be published and readily available.

d. The institution shall have transfer of credit policies that (1) are publicly disclosed, and (2) include a statement of the criteria established by the institution regarding the transfer of credit earned at another institution of higher education.

e. Members of the Association having degree programs in K–12 art/design education and/or art therapy shall state in their catalogs the registration, certification, and/or licensure to which their curricula will lead.

f. Qualitative, quantitative and time requirements; costs; and academic calendars shall have an evident and appropriate relationship to purposes, curriculum, and subject matters taught.

g. Program and degree titles shall be consistent with content (see also Standards for Accreditation II.I.2.c.).

h. When an institution or program offers work that is given academic credit by another institution, the source of the credit and any credential to which it leads must be clearly described.

i. Through means consistent with its purposes, and resources, (1) the institution or (2) the art/design program, either separately or in conjunction with the institution, shall routinely provide reliable data and information to the public concerning the achievement of its purposes.

j. The institution and the art/design unit shall have readily available valid documentation for any statements and/or promises regarding such matters as program excellence, educational results, success in placement, and achievements of graduates or faculty.

k. Any statement connecting any specific degree or program offering with career preparation, career entry, or preparation for advanced study must be consistent with what the degree or program specifically prepares graduates to be able to do immediately upon completion, and

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therefore with all of the following elements or characteristics for that specific program:

(1) Published purposes and requirements;

(2) Degree or program level and type;

(3) Subject matter content, range, and depth;

(4) Distributions of curricular and other graduation requirements; and

(5) Scope and levels of observable competency development in graduating students.

NOTE: Publication of information indicated in Standards for Accreditation II.I.1.k.(1)–(4) is encompassed in requirements for all institutions and programs outlined in Standards for Accreditation II.I.1.b.(1), (3), and (10).

l. Published materials must clearly distinguish those programs, courses, services, and personnel available every academic year from those available on a less frequent basis.

m. Publications shall not list as current any courses not taught for two consecutive years that will not be taught during the third consecutive year.

n. Catalogs, advertising, and other promotional materials shall clearly differentiate existing programs from those that are prospective or under consideration.

2. Guidelines

a. Published materials include Internet websites and any other forms of information distribution.

b. In addition to a standard catalog, art/design units normally maintain published documents of sufficient clarity and detail to facilitate understanding about all aspects of their work among administrators, faculty, students, parents, and other constituencies.

c. The practices of member institutions support the system of academic currency that allows degrees to be broadly understood and widely accepted. Member institutions serve students, higher education, and the public by ensuring that degree and program titles are consistent with content. Standard academic degree rubrics and titles of degrees and emphases should be used unless the degree or program has a significant emphasis on unique content. Enrollment levels, public relations, and resource availability are important elements in determining an institution's program offerings, but they are not appropriate criteria for assigning degree titles.

J. Community Involvement

1. Standard. Institutions must publish any formal relationships and policies concerning community involvement that are connected to curricular offerings.

2. Comment. Institutions vary in the intensity of their community involvement according to their various objectives and types of program offerings. Usually, art/design units enjoy reciprocal benefits from cooperating with local schools, presenting organizations, and arts organizations (see Appendix II.A., Section 4.D.).

K. Articulation with Other Institutions

1. Standard. Institutions must publish any articulation agreements with other institutions.

2. Guideline. Baccalaureate degree-granting art/design units are expected to assume joint responsibility for working cooperatively to facilitate the articulation between community and two-

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year college and four-year college programs: for example, the development of clear and functional understandings and agreements (see Standards for Accreditation II.I.1.b.(10)), validation examinations, state and/or regional articulation committees, means of relating courses in terms of content rather than numbers or titles, and procedures for maintaining current information regarding credit, transfer, and admission policies (see Standards for Accreditation III.A.3. for standards regarding transfer of credits).

L. Evaluation, Planning, and Projections

1. Standards

a. The art/design unit shall evaluate, plan, and make projections consistent with and supportive of its purposes and its size and scope.

(1) Techniques, procedures, time requirements, resources, and specific methodologies used for evaluation, planning, and projections shall be developed by the art/design unit appropriate to the natures of the visual arts/design disciplines offered at the institution and with a logical and functioning relationship to overall financial conditions impacting the institution.

(2) The art/design unit shall ensure that appropriate individuals are involved and appropriate information is available to accomplish the goals and scope of each evaluation, planning, and projections project.

(3) Each art/design unit must determine the scope, breadth, and degree of formal systematic attention to the connected activities of evaluation, planning, and projection as it makes decisions pertaining to:

(a) Purposes;

(b) Present and future operational conditions;

(c) Resource allocation and development; and

(d) Specific programs and services.

(4) Reviews and evaluations must demonstrate consideration of the functions of study at all levels (graduate, undergraduate, and certificate/diploma) and the purposes, structure, content, and results of each specific program of study.

(5) Evaluation, projection, and planning associated with adding, altering or deleting curricula must address multiple, long-term programmatic and resource issues.

(6) Evaluation, planning, and projection must be pursued with sufficient intellectual rigor and resource allocations to accomplish established purposes.

b. The art/design unit shall demonstrate that the educational and artistic development of students is first among all evaluative considerations.

(1) Regular, systematic attention shall be given to evaluating the learning achievements of individual students.

(2) Individual evaluations shall be analyzed and organized to produce an overall picture of the extent to which the educational and artistic purposes of the art/design unit are being attained.

(3) When various levels of programs are offered in the same field of study, differences in

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expectations about achievement must be specified.

(4) The art/design unit shall be able to demonstrate that students completing programs have achieved the artistic and educational levels and competencies outlined in applicable NASAD standards.

2. Guidelines, Recommendations, and Comment

a. Evaluation, planning, and making projections are a set of connected activities that relate to all aspects of an art/design unit's work. They include, but go well beyond numbers of students, personnel, or programs; lists of resource needs; or declarations of aspiration. They address strategies and contextual issues consistent with the purposes, size and scope, program offerings, and responsibilities of the art/design unit.

b. Evaluations provide analyses of current effectiveness; planning provides systematic approaches to the future; and projections create understanding of potential contexts and conditions.

c. Internal evaluation and reporting of evaluation of student achievement normally differentiates among (1) levels of quality, and (2) attainments.

d. Normally, students have regular opportunities to evaluate formally the curricular experiences in which they participate. This is an example of the function indicated in Standards for Accreditation II.L.1.a.(2).

e. Art/design units have available a broad range of evaluation techniques such as juries, critiques, course-specific and comprehensive examinations, institutional reviews, peer reviews, and the performance of graduates in various settings. Information gained is used as an integral part of planning and projection efforts. However, the institution and the art/design unit should ensure and make clear that evaluation, planning, and projection exist to serve the art/design unit's programs, rather than the reverse. Periodic cost/benefit analyses, in terms of improvements to student learning in art/design are strongly encouraged for all art/design units and externally imposed evaluation systems.

f. Evaluation, planning, and projection should contribute to a general understanding about the relationships of parts to wholes, both for the art/design unit and its component programs. They should result in successful management of contingencies, opportunities, and constraints. They should produce realistic short- and long-term decisions. They should ensure a productive relationship between priorities and resource allocations.

g. Over-reliance on quantitative measures is inconsistent with the pursuit of quality in the arts. The higher the level of achievement, the more strongly this pertains.

M. Operational Standards for All Postsecondary Institutions for which NASAD is the Designated Institutional Accreditor. Additional operational standards that apply to all postsecondary institutions which designate NASAD as their institutional accreditor may be found in Standards for Accreditation XXI. All institutions to which these standards apply must demonstrate compliance with all applicable standards in Standards for Accreditation XXI.

N. Operational Standards and Procedures for Proprietary Institutions. Additional operational standards that apply to all proprietary institutions may be found in Standards for Accreditation XXII. All institutions to which these standards apply must demonstrate compliance with all applicable standards in Standards for Accreditation XXII.

O. Operational Standards and Procedures for Branch Campuses, External Programs. Additional operational standards that apply to branch campuses, extension programs, and other external programs

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may be found in Appendix I.A. All institutions to which these standards apply must demonstrate compliance with all applicable standards in Appendix I.A.

III. ART AND DESIGN PROGRAM COMPONENTS

NOTE: This section contains general statements regarding art and design programs that are classified in five ways: (1) standards applicable in all or most institutions; (2) standards applicable if specific types of programs are offered; (3) policies regarding the application of standards; (4) policies that provide frameworks for the application of curricular standards; and (5) policies recommending actions for development of the field. The classification of each section is indicated in italics. Standards for Accreditation IV.–XVII. provide further and more specific standards for degree-granting programs. Standards for Accreditation XVIII.–XX. provide further and more specific standards for non-degree-granting programs.

A. Credit and Time Requirements *(always applicable in postsecondary institutions)*

1. Program Lengths

a. Associate degrees require a minimum of 60 semester or 90 quarter credit hours and the equivalent of two academic years.

b. Baccalaureate degrees require a minimum of 120 semester or 180 quarter hours and the equivalent of four academic years.

c. Post-baccalaureate degrees require a minimum of 30 semester or 45 quarter hours and the equivalent of one academic year and must meet additional credit and time requirements according to degree level and title.

d. Postsecondary professionally-oriented non-degree-granting programs in degree-granting institutions have semester, quarter, clock hour, and/or other time requirements commensurate with the subject matter and purposes of specific programs.

e. The total time requirement for any postsecondary program must be commensurate with the number of credit or clock hours required to complete the program. Reasonable total time requirements must be formulated and published.

f. Community or precollegiate programs have time requirements commensurate with the subject matter and purposes of specific programs. Except for this item, the standards in Standards for Accreditation III.A. do not apply to community precollegiate programs.

2. Awarding Credit

a. Credit shall be awarded consistently according to the published credit policies of the institution and in compliance with NASAD standards. Institutional policies shall establish the credit hour in terms of time and achievement required. The minimum time requirement shall be consistent with or reasonably approximate the following: (1) a semester hour of credit represents at least 3 hours of work each week, on average, for a period of fifteen to sixteen weeks; (2) a quarter hour of credit represents at least 3 hours of work each week for a period of ten or eleven weeks. Credit for other kinds of academic requirements or offerings that are in different formats, use different modes of delivery, or that are structured to take a different amount of time is computed on the same basis in terms of representing at least the equivalent amount of work.

Policies concerning achievement shall be consistent with the principle that credit is earned only when curricular, competency, and all other requirements are met and the final examination or

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equivalent is satisfactorily passed.

> **NOTE:** The above standard does not (i) require that a credit hour definition at any institution for any course or purpose duplicate exactly the definition provided in Standards for Accreditation III.A.1. and 2., or that all programs or courses within a single institution follow the same credit hour policies; (ii) restrict an institution from requiring more student work per credit hour than indicated in Standards for Accreditation III.A.2.a.(1) and (2); (iii) dictate the ratio of in-class versus out-of-class work; or (iv) prevent an institution from establishing means and methods for equating the direct assessment of student learning to the awarding of 1 or more credit hours.

b. In lecture/discussion courses requiring outside preparation, 1 hour of credit represents 1 hour each week of the term in class, and 2 hours of work outside class. In studio/laboratory courses, 1 hour of credit represents 3 hours of studio/laboratory time and space each week of the term: normally, studio classes led by an instructor meet for a minimum of 1.5 hours per week for each credit granted, and more often than not, for 2 hours per week; the remaining time is for studio/laboratory class preparation. Any explanations and justifications regarding variations from these norms are to be substantiated with evidence of student achievement relevant to the purpose of the course. In all cases, faculty contact must be sufficient to ensure the development of knowledge and skills required by each course. Normally faculty contact is greater at the foundation or introductory level.

c. When institutions offer programs and courses for abbreviated time periods, or in independent study, they must ensure that students completing such programs or courses acquire levels of knowledge, competence, and understanding comparable to that expected of students completing work in the standard time period. For example, in order to earn 1 hour of credit during a summer session, students must attend approximately the same number of class hours and make the same amount of preparation as they would in attending a 1-hour-per-week course for one term during the regular academic year.

d. Institutions or curricular programs using a clock-hour system must ensure that their system for dealing with matters such as clock hour assignments or requirements and the relationship of clock hours to program completion is consistent with and equivalent, but not necessarily identical, to credit and time requirements as stated in Standards for Accreditation III.A. (see also the Note, Standards for Accreditation III.A.2.a.). Meeting this standard does not require the conversion of clock hour based programs to credit hour based programs. Normally, institutions participating in federal Title IV programs also follow federal regulations regarding clock hour definitions, calculation, equivalencies, and policies.

e. Any credit awarded for short-term workshops should be computed on the same basis as other coursework during the academic year. Institutional members of NASAD should not award credit for short-term workshops or attendance at meetings sponsored by themselves, other institutions, or organizations unless such credit is acceptable toward specific undergraduate, graduate, or non-degree-granting professional programs at their own institutions.

3. Transfer of Credit

a. Presentation of a satisfactory transcript from a collegiate institution accredited by an agency or association recognized by the U.S. Secretary of Education is one criterion for transferring credit.

b. In granting course credit to transfer students, the receiving institution shall maintain policies to assure that the overall educational experience of the transferring student is at least equal in quality to that of the student taking all of his or her work at the member school.

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c. Transfer credit shall be granted for courses taken at another institution only when the coursework involved and the level of the transfer applicant's achievement in it permit the student to complete the remaining coursework successfully.

d. Accreditation by the Association carries with it no obligation to accept, without examination, art/design credits from other member schools.

4. **Published Policies.** The institution must publish clear policies concerning program length and credit-granting policies, including indications of courses that carry or do not carry credit in specific circumstances (see Standards for Accreditation II.I.1.c.).

   The institution shall have transfer of credit policies that (a) are publicly disclosed, and (b) include a statement of the criteria established by the institution regarding the transfer of credit earned at another institution of higher education (see Standards for Accreditation II.I.1.d.).

5. **Transcript Evidence.** Transcripts of graduates must be consistent with the curricular and other requirements stated in the institution's publications applicable to the degree or credential being awarded. Applicability is defined by the published policies of the institution.

6. **Institutional Procedures.** The institution must have procedures to make credit hour assignments for courses, programs, and other requirements consistent with its credit hour policies applicable to those offerings, and the means to ensure accurate and reliable application of its credit hour policies and procedures. Consistent with the Note in Standards for Accreditation III.A.2.a., it is recognized that institutions may have different policies or procedures for different types of programs or delivery systems.

7. **Notification Rule.** As a USDE-recognized accrediting agency, NASAD is required to file a specific report to the U.S. Secretary of Education when an institution is found in systemic noncompliance with the NASAD standards and policies regarding credit hours either within a specific program of study or unit or, if applicable, within an institution as a whole. In this instance, systemic refers to organization- or unit-wide policies, procedures, or practices including, but not limited to continuous noncompliance. Normally, specific instances or lapses promptly clarified or remediated are not considered systemic. Opportunities for the institution to remediate problems and document compliance with NASAD standards and policies normally precede such notification to the Secretary. The Rules of Practice and Procedure, Part II, Article IV., Section 4. and federal regulations as amended from time to time provide one protocol framework for communication and notification between NASAD and the Secretary.

B. Time on Task, Curricular Proportions, and Competencies *(always applicable in postsecondary institutions)*

1. Curricular structures and requirements must provide sufficient time on task to produce the competencies required and expected.

2. Curricular proportions indicated as benchmarks in the standards below represent the amounts of time normally needed to reach the levels of achievement expected for graduation.

3. In calculating curricular structures, the Association uses a four-year degree program of 120 semester hours, or 180 quarter hours, as the basis for determining percentages of various components. For institutions with program requirements beyond 120 semester hours or 180 quarter hours, the combined percentage of the components will exceed 100%. For associate degrees, the basis is 60 semester hours or 90 quarter hours. For initial master's degrees, the basis is 30 semester hours or 45 quarter hours.

4. Professional undergraduate and graduate programs in art/design are shaped by the realities and

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expectations in the field to seek the development of competencies at the highest possible levels. At these levels, competencies are far beyond minimum learning expectations and are usually not amenable to evaluation in purely mathematical terms. The higher the level of achievement, the more each work is judged by experts on the terms and expectations it sets for itself.

C. Forms of Instruction, Requirements, and Electives

1. Forms of instruction chosen for any specific curricular program must have a logical and functioning relationship to the purposes of that program and to expectations for learning and achievement specified by NASAD standards and by the institution. Forms of instruction include, but are not limited to lecture courses; labs; private, independent, or small group study; internships; and so forth.

2. It is the prerogative of the institution to establish course requirements and the extent to which a particular curriculum will contain any opportunities for free electives or electives chosen from a specified set of courses or experiences. For each curriculum, this determination must have a logical and functioning relationship to purposes and expectations for learning and achievement specified by NASAD standards and by the institution.

D. Individual Program Continuity *(always applicable)*. Institutions shall not impose new or revised degree requirements on continuing students. Enrolled students shall have the option to complete the degree requirements in effect at the time of their admission into a degree program.

E. Residence *(always applicable)*. No degree or other credential shall be granted by a member school of NASAD unless the student has fulfilled any established residence policy of the institution applicable to that program.

F. New Programs *(always applicable)*

1. Institutions planning to (a) offer new programs or (b) offer a program for the first time, must receive Plan Approval from the Commission on Accreditation before the matriculation of students (see Rules of Practice and Procedure, Part II, Article I., Section 3.; and Rules of Practice and Procedure, Part II, Article VI.).

2. Institutions planning to offer a master's or doctoral degree for the first time should inquire of the National Office for appropriate additional procedures.

G. Independent Study *(applicable to programs that contain or are based on independent study)*

1. Definition. Each offering institution must publish information that includes its definitions of independent study and its policies for the conduct of independent study on campus or through distance learning.

2. Policies and Resources

a. Institutions offering degrees extensively based on independent study must provide the instruction, tutorials, critiques, evaluations, and resources essential to degree programs of that type, and to each specific degree being offered.

b. At the doctoral level, institutions may not wish to specify course or credit requirements, other than the satisfactory completion of certain examinations, project reviews, or a dissertation.

3. Student Requirements

a. The content and expectations for each independent study course or program or degree must be clearly stated to the student in writing before each independent study begins.

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b. When independent study is used to substitute for a required course, the institution must ensure that the content, scope, depth, and learning expectations of the required course are fulfilled by the independent study.

4. **Degree Requirements.** Each institution determines the extent to which independent study is to be a means for meeting the requirements for each degree that it offers. However, if a degree is based primarily on course requirements that are to be taken in formal classes, normally independent study is not substituted for more than 20% of such required courses.

H. Distance Learning *(applicable to programs that are partially or entirely delivered by distance learning)*

1. **Definition.** Distance learning involves programs of study delivered entirely or partially away from regular face-to-face interactions between teachers and students in studios, classrooms, tutorials, and laboratories associated with coursework, degrees, and programs on the campus. Normally, distance learning uses technologies to deliver instruction and support systems, and enable substantive interaction between instructor and student.

2. **Means.** The distance aspect of these programs may be delivered through a variety of means, including teaching and learning through electronic systems.

3. **Standards Applications**

   a. Distance learning programs must meet all NASAD operational and curricular standards for programs of their type and content. This means that the functions and competencies required by applicable standards are met even when distance learning mechanisms predominate in the total delivery system.

   b. Programs in which 40% or more of their requirements are fulfilled through distance learning will be designated as distance learning programs in NASAD publications.

4. **Standards**

   a. Purposes and Resources

   (1) Purposes shall be clear. The institution must demonstrate that such purposes can be delivered through current or proposed systems of distance learning.

   (2) The institution must provide financial and technical support commensurate with the purpose, size, scope, and content of its distance learning programs.

   (3) Any sustained enrollment growth must be accompanied in a timely manner by a corresponding growth in resources and support systems.

   b. Delivery Systems, Verification, and Evaluation

   (1) Delivery systems must be logically matched to the purposes of each program. Delivery systems are defined as the operational interrelationships of such elements as program or course content, interactive technologies, teaching techniques, schedules, patterns of interaction between teacher and student, and evaluation expectations and mechanisms.

   (2) The institution must have processes that establish that the student who registers in a distance education course or program is the same student who participates in and completes the program and receives academic credit. Verification methods are determined by the institution and may include, but are not limited to, secure login and password protocols, proctored examinations, and new or other technologies and practices.

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(3) Institutions must use processes that protect student privacy and notify students of any projected or additional student charges associated with verification of student identity at the time of registration or enrollment in distance education programs.

(4) Specific opportunities for student evaluations shall be established throughout the time period of each course or program.

c. Technical Prerequisites

(1) The institution must determine and publish for each distance learning program or course (a) requirements for technical competence, and (b) any technical equipment requirements. The institution must have means for assessing the extent to which prospective students meet these requirements before they are accepted or enrolled.

(2) The institution shall publish information regarding the availability of academic and technical support services.

d. Program Consistency and Equivalency

(1) The institution shall have mechanisms for assuring consistency in the application of policies, procedures, and standards for entering, continuing, and completing the course or program.

(2) When an identical program, or a program with an identical title, is offered through distance learning as well as on campus, the institution must be able to demonstrate functional equivalency in all aspects of each program. Mechanisms must be established to assure equal quality among delivery systems.

e. Communication with Students. Instructions to students, expectations for achievement, and evaluation criteria must be clearly stated and readily available to all involved in a particular distance learning program. Students must be fully informed of means for asking questions and otherwise communicating with instructors and students as required.

5. Notification Rule. A special notification rule applies to institutions that participate in federal Title IV programs and to which Standards for Accreditation XXI., Section 2.D. apply.

I. Disciplines in Combination *(applicable when an institution offers inter-, multi-, co-disciplinary programs, etc.)*

1. Standards Applicability. To some extent, every curriculum represents a combination of modes of thought and inquiry, and thus, some combination of disciplinary perspectives. However, when an institution decides to offer any study program or degree which is explicitly designated as a multi- or interdisciplinary combination and in which art/design is either the primary or home discipline or constitutes over 25% of the total program content, the following standards apply in addition to those applicable to all other art/design programs.

2. Standards

a. A specific coherent set of purposes shall be developed and published that include, but are not limited to:

(1) Title or basic identification of the primary focus of the program in terms of fields of study or areas of inquiry, or both.

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(2) Specific content, techniques, and perspectives used to pursue the primary focus, including aspirations and expectations regarding:

(a) Breadth and depth;

(b) Specific intellectual, disciplinary, or artistic engagement; and

(c) Juxtaposing, combining, applying, integrating, or synthesizing the disciplines involved.

b. Operations shall reveal coherent achievement of goals and objectives.

c. Terminology shall reflect accurately the type(s) of disciplinary combinations represented or used.

d. Program titles shall be consistent with their curricular content. Published materials shall be clear about the status of any curricular program with respect to constituting a major, a minor, or field for independent study, etc.

e. Applicable prerequisites for courses or curricula shall be clearly stated, especially with regard to levels of competence in specific disciplines that are to be combined.

f. There must be clear descriptions of what students are expected to know and be able to do upon completion, consistent with Standards for Accreditation III.I.2.a.

g. Guidance, advising, and mentoring shall be adequate to support the achievement of purposes.

h. Evaluation mechanisms shall be consistent with the goals defined for specific courses, projects, programs, or curricula, and to the collaborative approach(es) involved.

3. Art/Design Content. Programs expressing objectives in specific art/design content are reviewed in terms of that content and the level and type of achievement expected.

J. Majors in or Based on Electronic Media *(applicable when programs are focused on content addressed in Standards for Accreditation III.J.2.a. and b.)*

1. Standards Applicability

a. The following standards apply to all majors in or based on electronic media including the Bachelor of Fine Arts in Digital Media. The specific content standards for this program are found under Standards for Accreditation IX.C.

b. In reviewing majors in or based on electronic media and technology, the Commission will consider the extent to which electronic technology is used in the context of programs in the standard art/design disciplines discussed elsewhere in the *Handbook*. Given the extent to which electronic media and technology are the focus of such programs, the standards in this section may apply along with the standards for the home field.

c. Programs centered on new approaches and combinations will be reviewed by the standards in this section and, as applicable, by those that address distance learning and disciplines in combination.

2. Purposes, Options, and Characteristics. Computers and associated electronic media have expanded possibilities for the education of art/design professionals and other artists. Institutions have a large number of options for establishing goals for curricula and coursework. Choices include, but are not limited to, the following categories:

a. Discipline(s). Programs may concentrate in, represent combinations of, or integrate studies in

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such areas as the standard art/design disciplines, computer science, engineering, design, digital media, animation, film/video, languages, the psychology of perception, and many others. Within art/design, new technologies may develop additional fields.

Programs may seek to use electronic media and technology as a tool to do work in a pre-existing field. Programs may also combine fields in various ways to develop new sets of knowledge and skills for various applications. Institutions may also seek to create new fields, or to address emerging niches in particular job markets.

b. Technology. Content goals range from how a technology works, to how to work it, to how to work with it, to how to do work with it, to how to understand it, to how to integrate it. Programs may concentrate on one or more technologies. Technology goals may also include how to build technologies, how technologies evolve, or the impacts of technology.

c. Problem Solving. Each program represents a particular set of approaches and expectations for identifying and solving problems. The level, nature, and complexity of the problems to be solved delineate the program's character and the projected accomplishments of its graduates.

d. Delivery System. A wide variety of practices work as long as within each program or curriculum delivery systems is consistent with the specific achievements necessary to the success of that program. In addition to traditional formats, team-based teaching, learning, projects, and evaluations are common in electronic media programs.

e. Specialization. The range here includes programs that provide a broad foundation as the basis for future specializations to programs that are specifically focused on a particular field or subparts thereof. Connections and specializations involving art/design, various design fields, photography, animation, digital media, film/video, Web/Internet applications, movement and dance, music, computer science, multimedia, and pedagogies at various levels are among the most usual areas of focus.

f. Education in Art and Design. Each program makes a choice regarding the extent to which it addresses foundation principles and techniques in and of themselves or in some combination with a more specialized purpose.

g. General Liberal Education. A determination is made regarding the extent to which elements or composite expectations for education in the humanities, sciences, social sciences, and other arts are included in the program.

3. Standards

a. A specific coherent set of purposes shall be developed and published that include, but are not limited to:

(1) Titles or basic identification of subject matter, techniques, technologies, disciplines, or issues to be addressed.

(2) Specific content, methods, and perspectives used to consider subject matter, techniques, technologies, disciplines, or issues to be addressed, including expectations regarding:

(a) Specific artistic, intellectual, or disciplinary engagement;

(b) Breadth and depth in disciplinary components;

(c) The development of problem setting and solving capabilities.

b. Curriculum and other program requirements shall be consistent with goals and objectives.

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c. Program titles shall be consistent with their curriculum content.

d. Applicable prerequisites for courses or curricula shall be clearly stated, especially with regard to levels of competence in specific disciplines or technologies central to the artistic or educational purposes and content of the program. The institution must have means for assessing the extent to which prospective students meet these requirements before they are accepted or enrolled.

e. The institution must determine and publish any technical equipment requirements for each program or course. The institution must have means for assessing the extent to which prospective students meet these requirements before they are accepted or enrolled.

f. There must be clear descriptions of what students are expected to know and be able to do upon completion, and effective mechanisms for assessing student competencies against these expectations. Normally, expectations and competencies can be related to all or several of the seven purposes areas outlined above (see Standards for Accreditation III.J.2.a.–g.). The level of the competency expected shall be consistent with the level of the degree or program offered.

K. Non-Degree-Granting Programs for the Community *(applicable as appropriate to the purposes or nature of a specific educational effort)*

1. Standards Applicability. Many postsecondary art/design units offering liberal arts or professional degrees or programs also offer non-degree-granting programs of study for children, youth, and adults in their communities. These range from private lessons with collegiate instructors to large, institutionalized programs with specialized professional faculty and administration. *Community Art/Design School, Preparatory Program, Laboratory School, Community Division, Magnet School,* and *Performing and Visual Arts School* are among the many titles used to designate such programs when they have a specific published identity.

When a postsecondary institution offers non-degree-granting art/design programs that (a) serve individuals in their communities in a pre-professional or avocational context; (b) have a specific published identity; (c) have at least one specifically designated administrator; and (d) operate on an academic year or year-round basis, the part of the art/design unit or other entity so designated and the programs it offers must meet the following standards in order to protect the institution's name and its accreditation status as an art/design unit.

2. Standards

a. Specific purposes correlated with those of the postsecondary art/design unit and the institution as a whole must be developed and published.

b. Statements of purpose must clarify priorities among art/design and other important goals.

c. Functional principles in the NASAD standards for purposes and operations (see Standards for Accreditation II.) shall be visible in the organizational and management relationship between the postsecondary and non-degree-granting community-oriented elements of the total art/design effort, and shall support the achievement of educational results as specified by programmatic purposes.

d. Titles of programs and terminology must be consistent with content and programmatic focus. For example, use of the term *community* implies open opportunity for all; the term *laboratory*, units or programs involving the majority of intern teachers from pedagogy programs.

e. A review of each instructional program demonstrates that students are:

(1) Achieving a measurable degree of technical mastery in at least one of the traditional or

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innovative techniques appropriate to their area of study.

(2) Developing an effective work process and a coherent set of ideas and goals appropriate to their level of study.

(3) Developing a significant body of skills sufficient to produce work consistent with the goals of their programs.

f. The offering of non-degree-granting credentials such as certificates and diplomas shall be consistent with NASAD standards for such programs.

3. **Opportunities.** Community education programs are encouraged to provide cultural opportunities to the communities they serve. When planning programs of study and cultural activities with and for the community, consideration should be given to, and informed by, the heritage(s) of the community in which the institution operates.

L. Content and Methods *(policies that establish a conceptual framework or guidelines for the application of curricular standards)*

1. NASAD standards address bodies of knowledge, skills, and professional capacities. At times, the standards require breadth, at other times, depth or specialization. However, the standards do not mandate specific choices of content or methods.

2. With regard to specifics, art and design have a long history, multiple connections with cultures, and numerous successful methodologies. Content in and study of these areas are vast and growing. Each art/design unit is responsible for choosing among these materials and approaches when establishing basic requirements consistent with NASAD standards and the expectations of the institution.

3. In making the choices outlined in Standards for Accreditation III.L.2., the institution is responsible for decisions regarding breadth and depth and for setting proportions among them.

4. Choices and emphases, as well as means for developing competencies, reflect institutional and program purposes and specific areas of specialization. The result is differences among programs regarding attention given to specific content, repertories, and methods and to various perspectives through which art/design may be studied.

M. Flexibility and Innovation *(policies that establish a conceptual framework or guidelines for the application of curricular standards)*

1. NASAD standards constitute a framework of basic commonalities that provides wide latitude for the creativity of faculty, students, and institutions.

2. There are many ways to achieve excellence. Innovative and carefully planned experimentation is encouraged. Experimentation might lead to programs of study not specifically indicated in Standards for Accreditation IV.–XXI.

3. Failure to follow the specific approaches indicated or implied by a standard will not necessarily preclude accreditation; however, if deviations exist, the institution must provide an acceptable rationale documenting how functions required by the standard are being fulfilled, or how required competencies are being developed.

N. Quality Policies *(establish a conceptual framework or guidelines for the application of curricular standards)*

1. Quality is developed and enabled by combinations of competence, capacity, aspiration, and dedication supported by essential resources. Artistic and academic quality is created primarily

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through the work of individuals and groups of faculty and students.

2. With regard to quality:

   a. NASAD standards set thresholds that establish basic but demanding requirements for studies in art and design.

   b. NASAD reviews of institutions and programs analyze, recognize, and promote artistic, intellectual, and programmatic quality and their relationships through and beyond the standards of the Association.

   c. In addition to the requirements set by the NASAD standards, the faculty and administration of individual schools define and implement specific expectations for levels of quality to be reached by graduating students.

   d. NASAD standards, reviews, and sets of institutional expectations primarily delineate characteristics, indicators, and conditions of quality. Ultimately, quality itself is manifested in the work that students and graduates are able to produce.

3. After fundamental competencies have been achieved, judgments about quality are best made by professionals who through education, training, and experience are able to determine high levels of artistic and intellectual achievement. Operational applications of this principle are the prerogative of the institution.

O. Visual Arts in General Education *(policy recommending actions for development of the field through curricular and other efforts)*. The Association encourages member institutions, as appropriate to their objectives and situation, to offer programs for non-majors toward the development of the future public for art and design. Opportunities should be afforded non-major students through courses in studio instruction, history and criticism, and art/design appreciation.

Non-major students should be encouraged to develop an appreciation and knowledge of art and design by direct participation in studio classes. The objectives of course offerings in art and design appreciation should be to expose students to a broad range of styles and to develop critical skills that enable the individual to be knowledgeable and discriminating. Institutions are encouraged to experiment with various types of course offerings, and to be innovative in designing them, in order to meet the interests and needs of non-major students.

IV. UNDERGRADUATE PROGRAMS IN THE VISUAL ARTS AND DESIGN

A. Fundamental Purposes and Principles

1. Purposes. Each institution is responsible for developing and defining the specific purposes of its overall undergraduate program in art/design and of each undergraduate degree program it offers.

2. Relationships: Purposes, Content, and Requirements

   a. For each undergraduate degree program there must be logical and functioning relationships among purposes, structure, and content. This includes decisions about requirements in foundations, areas of art/design specialization or emphasis, and studies in other disciplines.

   b. For each undergraduate degree program, the curricular structure and the requirements for admission, continuation, and graduation must be consistent with program purposes and content.

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B. Resources and Art and Design Program Components

1. Resources must be sufficient to support the purposes, goals, objectives, and content of undergraduate programs and must meet NASAD operational requirements in this regard (see Standards for Accreditation II.).

2. Curricular components of undergraduate programs must meet NASAD requirements in Standards for Accreditation III. (including, but not limited to Credit and Time Requirements; Time on Task, Curricular Proportions, and Competencies; Forms of Instruction, Requirements, and Electives; Individual Program Continuity; Residence).

3. The standards applicable to each undergraduate program are comprised of those referenced in Standards for Accreditation IV.A., and B.1. and 2., as well as those outlined for specific programs that follow.

C. Degree Structures

1. Types of Undergraduate Degrees

a. Designations. The Association recognizes two generic types of undergraduate degrees in art and design. To be consistent with general academic practice, these degrees are labeled (1) liberal arts degrees, and (2) professional degrees.

b. Purposes. Each of these degrees has distinct overall purposes reflected structurally in the curricular time accorded to art/design studies and to other curricular components.

(1) The liberal arts degree focuses on art and design in the context of a broad program of general studies.

(2) The professional degree focuses on intensive work in art and/or design supported by a program in general studies. Normally, the intent is to prepare for professional practice.

c. Time Distributions and Degree Integrity

(1) Percentages of total curricular time devoted to specific areas define the purposes, character, title, and academic currency of degree programs. Institutions must establish and apply curricular requirements that maintain the integrity of specific degree types and titles.

(2) Variation from usual curricular distributions indicated as guidelines cited at various points throughout Standards for Accreditation IV. and V. regarding the structures of liberal arts and professional degrees will not necessarily preclude accreditation, but logical and convincing reasons must be presented that address (a) the development of student competencies required by the standards for each program, and (b) consistency of degree titles, goals and objectives, content, and character of each degree program.

2. Majors, Minors, Concentrations, and Areas of Emphasis

NOTE: For interpretive information regarding percentages, see Standards for Accreditation III.B.3.

a. NASAD recognizes many successful models for organizing undergraduate curricula in art and design; however, clarity with respect to distinctions between majors and areas of emphasis is essential in the publications of the Association and its member institutions.

b. The term *major* is used to indicate the field of study constituting the focus of a particular degree program, the name of this field normally being appended to the generic degree title. For example, in the titles Bachelor of Fine Arts in Painting, Bachelor of Fine Arts in Graphic

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Design, Bachelor of Arts in Art History, Bachelor of Science in Art Education, and Associate of Arts in Studio Art, Painting, Graphic Design, Art History, Art Education, and Studio Art are the requisite majors.

c. In order to be designated a *major* in a professional degree program or an associate degree program intended to transfer to a four-year professional degree program, a field of specialization must be accorded no less than 25% of the total credits required for the degree at the associate or baccalaureate level.

d. In order to be designated a *major* in a liberal arts degree program, a comprehensive field such as art, design, or art history must be accorded no less than 30% of the total credits required for the liberal arts degree at the associate or baccalaureate level.

e. Within specific majors, institutions may designate the possibility of areas of emphasis or minors. For example, a Bachelor of Arts with a major in Art may have Painting, Printmaking, Art History, etc., as areas of emphasis; a Bachelor of Fine Arts in Design may include areas of emphasis in various design specializations. Normally, coursework in an area of emphasis occupies at least 10% of the total curriculum; coursework in a minor, at least 12% (see Appendix II.C. for further guidelines regarding minors).

f. The term *concentration* is used by some institutions to designate a major, and by others to designate a minor or area of emphasis. Institutions must define and publicize the meanings of such terms and use such terms consistently within specific subject matter areas.

g. As institutions are reviewed by the Commission, distinctions will be made between majors and areas of emphasis. In NASAD publications, majors will be listed as unique terms appended to generic degree titles. If applicable, areas of emphasis will be placed in parentheses following the term designating the major. Member institutions are responsible for determining the appropriate means of making distinctions between majors and areas of emphasis in their own published materials.

It is recognized that concepts discussed under the terms *major* and *areas of emphasis* are expressed with other terminology at various institutions. NASAD is more concerned that the concept of distinction be present than the terms be consistent with NASAD's usage.

h. Some institutions offer non-degree-granting certificate programs that function to provide areas of emphasis or concentrations for students already candidates for undergraduate degrees in art/design at the institution. In such cases, the standards listed above regarding emphases or minors apply. Curricular standards for certificate programs serving other purposes and functions are outlined in Standards for Accreditation XVIII.–XX. As standards applicable to all programs indicate, the specific purposes, structure, admission requirements, and certain other operational and curricular aspects of certificate programs of any type must be clear in published materials.

3. Independent Study. Programs that include or are based upon independent study must meet applicable requirements in Standards for Accreditation III.

4. Liberal Arts Degrees

a. Curricular Structure and Title. Degrees in this category include Associate of Arts or Bachelor of Arts with a major in Art or Design and Associate of Science or Bachelor of Science with a major in Art or Design. Normally, 30–45% of the total course credit toward the degree is required to be in the creation and study of the visual arts or design.

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Description of the Proposed Program

Program Background

Virginia Commonwealth University (VCU) seeks approval to create a Bachelor of Science (BS) degree program in Pharmaceutical Sciences at the main campus in Richmond, Virginia. The proposed program will be administered by the Office of the Dean within the School of Pharmacy. The target date of the program's initiation is the fall 2023 semester.

The purpose of the proposed BS degree program in Pharmaceutical Sciences (BSPS) is three-fold: 1) to train students to work in the pharmaceutical, biotech and health-related industries, drug regulatory agencies, and clinical research organizations, 2) to serve as a pipeline into the Doctor of Pharmacy Degree (PharmD) that is already in place at VCU and many other universities, and 3) to prepare students for a Master of Science (MS) or Doctor of Philosophy (PhD) degree in pharmaceutical and biomedical sciences.

Pharmaceutical sciences include a broad range of basic science and clinical disciplines leading to the development, clinical use, and assessment of therapies. For example, drug discovery and design, drug delivery (i.e., dosage forms, biomaterials, pharmaceutics, pharmacokinetics/dynamics, bioavailability), drug action (i.e., pharmacology, toxicology, molecular and cellular biology, drug transport, pharmacodynamics, drug metabolism, biopharmaceutics, pharmacogenomics), clinical sciences (i.e., therapeutics, clinical trials, drug efficacy, post-marketing safety and efficacy surveillance), cost effectiveness and health outcomes, and regulatory sciences.

Graduates of a BS in Pharmaceutical Sciences program will be prepared to be employed for entry-level positions in the pharmaceutical and cosmetics industries, government and specialty laboratories, and biotechnology companies. Specific positions exist in product development, research, production/manufacturing, quality control/quality assurance, technical services, regulatory affairs, and packaging of products. To work in the pharmaceutical or biomedical industry, students in the BSPS program will learn concepts of basic and biomedical sciences related to pharmaceutical sciences. They will be able to:

- Identify the processes, methods, and tools used to discover, develop, and approve new drug products. Students will train in research laboratories in academic and industry settings. Graduates will be able to perform functions that support drug discovery and development, including drug analysis and sample testing.
- Apply principles of multidisciplinary sciences to solve problems in drug product development. This includes working in pharmaceutical production and quality control, as well as developing methods for drug delivery, and stability testing. Graduates will be able to operate and maintain pharmaceutical instrumentation.
- Use tools, experimental techniques, skills, and the scientific method to address problems in pharmaceutical sciences.

- Apply critical thinking, team science, and advanced problem-solving skills to complex societal health problems. Graduates will be able to apply experimental techniques and scientific methods to solve problems in health care related to the pharmaceutical sciences.
- Demonstrate proficiency in scientific literacy and professional communication skills, including writing, presenting, literature searching, reading, and critically reviewing scientific work. Graduates will be able to perform work related to cost effectiveness and health outcomes.
- Describe the U.S. health care system and roles of health care providers. Graduates will be prepared to work in pharmaceutical sales and regulatory affairs. Graduates will understand how new medications are developed and brought to the market.
- Demonstrate a basic understanding of professional and ethical conduct within the pharmaceutical sciences context.

Strengthening the pipeline of students going into the health professions, particularly pharmacy, and into advanced pharmaceutical science degree programs is a key goal for the BSPS. The numbers of applicants to pharmacy schools across the U.S. has declined 25% over the past decade.[1] COVID has put additional strain on the pharmacy workforce. Without enhancement of the pipeline into pharmacy degree programs there is likely to be a significant shortage of pharmacists and pharmacy technicians in the coming years, which may negatively impact health care services. The BSPS program is expected to attract and direct students into pharmacy degree programs. This is a reasonable expectation as some universities (such as the University of South Carolina, the University of Connecticut, the University of Georgia, and The Ohio State University) have been able to enhance their pipeline into the pharmacy profession through BSPS programs.

Pharmaceuticals are a critical component of public health in Virginia and beyond, particularly as parts of the world's population ages. The need for qualified professionals who can help develop medicines to treat new diseases like COVID-19 and distribute existing medicines to communities that can benefit from them is paramount. The role that pharmaceuticals and pharmaceutical professionals play in people's health care treatments is expected to grow, requiring both increased workers and the forward-looking curriculum this proposal describes.

The pharmaceutical industry represents a key economic pillar of Virginia and the United States. "The U.S. biopharmaceutical industry contributes substantially to national, state, and local economies by employing more than 811,000 individuals in 2017. This industry also supports approximately 3.2 million additional U.S. jobs through its varied supply base and from the additional economic impacts stemming from industry and worker spending. Altogether, the U.S. biopharmaceutical industry directly and indirectly supports more than 4.0 million U.S. jobs in 2017."[2] The pharmaceutical industry in Virginia is now seeing dramatic growth. New pharmaceutical companies such as Phlow and CivicaRx have joined existing companies such as

[1] 2020-2021 PharmCAS Applicant Data Report. American Association of College of Pharmacy.
[2] TEConomy Partners, LLC and PhRMA, "The Economic Impact of the U.S. Biopharmaceutical Industry: 2017 National and State Estimates," https://www.phrma.org/-/media/Project/PhRMA/PhRMA-Org/PhRMA-Org/PDF/D-F/Economic-Impact-US-Biopharmaceutical-Industry-December-2019.pdf

GSK Consumer HealthCare, Indivior, AMPAC[3] and kaleo in our area.[4] Thermo Fisher Scientific recently announced expansion plans in Virginia for clinical research, bioanalytical testing, and all phases of biopharmaceutical development for small molecule drugs, biologics, vaccines, and biomarker testing and to create 500 jobs.[5] Due to the growth of Central Virginia's pharmaceutical industry, demand for graduates with a BS in Pharmaceutical Sciences is likely to be high in VCU's primary service area.

The proposed BS degree program in Pharmaceutical Sciences was developed by the faculty and administration of the School of Pharmacy. The concept began in spring 2020 with discussion at multiple faculty meetings. A faculty team was identified to research the feasibility of establishing the proposed program and develop the curriculum. The proposal to establish the proposed degree program went before the School Executive Committee in December 2021 and was approved. Further development of the curriculum followed, and the proposal was approved by vote of the School of Pharmacy faculty for submission to the University and the State Council of Higher Education for Virginia (SCHEV) on February 2, 2022. At all stages, the faculty of the school have had the opportunity to develop and refine the curriculum.

The proposed BS degree program in Pharmaceutical Sciences responds to vital health care and economic needs in the Commonwealth and beyond. Virginia has an opportunity to achieve a greater leadership position in the research and production of pharmaceuticals, but needs qualified workers to do so. Graduates of this program will be able to move into pharmaceutical research and associated health professions that will make Virginia healthier and more prosperous. VCU is fully committed to offering the proposed degree program to ensure professionals are prepared and trained to meet industry needs.

Institutional Mission

As stated in its mission, "Virginia Commonwealth University and its academic health sciences center serve as one national urban public research institution dedicated to the success and well-being of our students, patients, faculty, staff, and community through:

- Real-world learning that furthers civic engagement, inquiry, discovery, and innovation;
- Research that expands the boundaries of new knowledge and creative expression and promotes translational applications to improve the quality of human life;
- Interdisciplinary collaborations and community partnerships that advance innovation, enhance cultural and economic vitality, and solve society's most complex challenges;
- Health sciences that preserve and restore health for all people, seek the cause and cure of diseases through groundbreaking research, and educate those who serve humanity; and

[3] AMPAC expanding Petersburg operation, adding 156 jobs. https://www.virginiabusiness.com/article/ampac-expanding-petersburg-operation-adding-156-jobs/ May 4, 2021

[4] John Reid Blackwell, "Local coalition wins $500,000 federal grant to create pharmaceutical hub project, seeking up to $100 million more," *The Richmond Times-Dispatch,* December 30, 2021. https://richmond.com/business/local/local-coalition-wins-500-000-federal-grant-to-create-pharmaceutical-hub-project-seeking-up-to/article_f623b985-275e-5543-a3f8-53c5d174a4bd.html

[5] Thermo Fisher adding 500 jobs in Richmond, VA-area CRO expansion. March 15, 2022 https://www.genengnews.com/topics/drug-discovery/outsourcing/contract-research/thermo-fisher-adding-500-jobs-in-richmond-va-area-cro-expansion/

- Deeply engrained core values of diversity, inclusion, and equity that provide a safe, trusting, and supportive environment to explore, create, learn, and serve."

The proposed BS in Pharmaceutical Sciences directly aligns with VCU's commitment to "preserve and restore health for all people and to seek the cause and cure of diseases." Graduates of the proposed program will be well prepared to enter the pharmaceutical and health workforce in pharmaceutical and health-related industries or go on to further education in graduate programs such as a PhD in pharmaceutical sciences, pharmaceutical engineering, or biomedical sciences (which includes biochemistry, neuroscience, pharmacology and toxicology, human genetics, microbiology and immunology, and physiology and biophysics). In addition, graduates of the proposed BS in Pharmaceutical Sciences program will be well-positioned to enter professional doctoral programs such as the Doctor of Pharmacy or Doctor of Medicine. In all of these directions, graduates will contribute to the health of the Commonwealth either by working in the pharmaceutical industry or as health care workers after further training. The proposed degree program is included in the institution's six-year plan.

Curriculum

The proposed Bachelor of Science in Pharmaceutical Sciences will require 120 credit hours. The proposed program includes required capstone experiences. The curriculum includes VCU general education requirements, course requirements for entry in the Doctor of Pharmacy program, and core courses for the BSPS degree. Students may enter as freshmen at VCU or transfer from other universities. Transfer students from other colleges and universities will be expected to meet the university's general education requirements or equivalents prior to degree completion.

The curriculum includes foundational sciences such as chemistry, biology, mathematics, anatomy and physiology, genetics, biochemistry, and statistics, as well as other courses in the VCU General Education curriculum, such as humanities/fine arts, focused inquiry, economics, communication, and racial literacy. The focus of the core curriculum is to provide students with specific knowledge and skills related to the breadth of pharmaceutical sciences, including drug discovery and design, drug delivery, drug action, clinical sciences, cost effectiveness and health outcomes, and regulatory sciences. The core curriculum is designed to provide students with knowledge and understanding of the pharmaceutical sciences and hands-on experience in related laboratory sciences, data sciences, or pharmacy services. Students will learn about the full process of drug development and clinical use related to discovery (i.e., medicinal chemistry, structure-activity relationships, structural biology, computational chemistry), delivery (i.e., dosage forms, biomaterials, pharmaceutics, pharmacokinetics/dynamics, bioavailability, stability, bioanalysis of drugs, analytical chemistry), drug action (i.e., pharmacology, toxicology, molecular and cellular biology, drug transport, pharmacodynamics, drug metabolism, biopharmaceutics, pharmacogenomics), clinical sciences (i.e., therapeutics, clinical trials, drug efficacy, post-marketing safety, and efficacy surveillance), cost effectiveness and health outcomes (i.e., pharmacoeconomics, quality of life, health and disease measures, adherence and health behavior), and regulatory sciences (i.e., drug approval, laws, and regulations).

Students in the proposed degree program will have required capstone experiences in various settings related to pharmaceutical sciences such as in research (i.e., laboratory-based, non-laboratory such as clinical/pharmacy practice, or in outcomes science), community service projects, and internships in industrial settings or government/regulatory agencies. These courses will incorporate guided reflection, integrative learning, and mentoring.

All new courses are denoted with an asterisk.

Program Requirements

General Education Requirements (30 credits)

The General Education curriculum is a requirement for all VCU undergraduate students and therefore does not focus on those skills, techniques or procedures specific to a particular occupation or profession. The general education curriculum which follows consists of 30 credit hours divided into three sections: 1) foundations, 2) breadth of knowledge and 3) areas of inquiry.

Foundations (15-16)

All undergraduate students are required to complete the following courses.

- UNIV 111. Focused Inquiry I (3)
- UNIV 112. Focused Inquiry II (3)
- UNIV 200. Inquiry and the Craft of the Argument (3)
- Quantitative Foundations (3-4)
- Racial Literacy (3)

Areas of Inquiry (14-15)

- Breadth of Knowledge (9)

Core Courses (31 credit hours)

PSCI 101. Career Exploration in Pharmacy and Pharmaceutical Sciences I (1)*
PSCI 102. Career Exploration in Pharmacy and Pharmaceutical Sciences II (1)*
PSCI 201. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development I (1)*
PSCI 202. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development II (1)*
PSCI 320. Molecules to Medicine I (2)*
PSCI 330. Molecules to Medicine II (3)*
PSCI 350. Social and Behavioral Influences on Medication Use (2)*
PSCI 370. Drug Dosage Form Development (3)*
PSCI 410. Analytical Methods in the Pharmaceutical Sciences I (2)*
PSCI 415. Analytical Methods in the Pharmaceutical Sciences II (3)*
PSCI 420. Molecules to Medicine III (2)*
PSCI 430. Principles of Drug Action (2)*
PSCI 450. Advances in Molecular and Cellular Therapy (2)*
PSCI 481. Capstone Experience in Pharmaceutical Sciences I (2)*
PSCI 482. Capstone Experience in Pharmaceutical Sciences II (2)*
PSCI 493. Capstone Seminar in Pharmaceutical Sciences I (1)*
PSCI 494. Capstone Seminar in Pharmaceutical Sciences II (1)*

Required Courses (54 credit hours)
BIOZ 151. General Biology Lab I (1)
BIOL 152. General Biology II (3)
BIOZ 152. General Biology Lab II (1)
BIOL 205. Basic Human Anatomy (4)
BIOL 300. Cellular and Molecular Biology (3)
BIOL 303. Microbiology (3)
BIOL 310. Genetics (3)
BIOL 455. Immunology (3)
CHEZ 101. General Chemistry I (1)
CHEM 102. General Chemistry II (3)
CHEZ 102. General Chemistry Lab II (1)
CHEM 301. Organic Chemistry I (3)
CHEZ 301. Organic Chemistry Lab I (2)
CHEM 302. Organic Chemistry II (3)
CHEZ 302. Organic Chemistry Lab II (2)
CHEM 403. Biochemistry I (3)
MATH 200. Calculus with Analytical Geometry I (4)
PHIS 206. Human Physiology (3)
PHIZ 206. Human Physiology Lab (1)
PHYS 201. General Physics (4)
STAT 210. Basic Practice of Physics (3)

Open Electives (4 credit hours)

Total: 120 credit hours

Capstone Experiences
All students in the proposed degree program will have a culminating experiential learning in the senior year, PSCI 481: Capstone Experience in Pharmaceutical Sciences I and PSCI 482: Capstone Experience in Pharmaceutical Sciences II. All students will receive constructive feedback from their faculty advisor for the relevant experiential and applied learning experience. The course is designed to provide students with experiences in research (i.e., laboratory-based, non-laboratory such as clinical/pharmacy practice, or in outcomes science), with community service projects, and internships in industrial settings or government/regulatory agencies. The capstone experiences require a total of 4 credits and a minimum of 180 experiential hours for graduation. All students will be required to complete a self-reflection. Students who earned an "F" for the capstone course will be required to retake the course.

See Appendix A for a sample plan of study.
See Appendix B for course descriptions.

Faculty Resources

The School of Pharmacy has 14 full-time faculty from the Department of Medicinal Chemistry, Department of Pharmaceutics, and the Department of Pharmacotherapy and Outcomes Sciences to teach required courses in the proposed program. The faculty members teaching courses for the proposed program have a combined 200 years of teaching experience and each faculty member holds a doctoral degree in medicinal chemistry, pharmaceutics, pharmacotherapy, or a related discipline.

Collectively, the faculty members have published more than 200 articles in professional journals over the past five years, authored books and book chapters, and made over 100 presentations at national and international conferences. Several faculty have held leadership positions in national organizations.

A faculty member serving as program director and advisor will be hired prior to the initiation year, 2023-2024, of the proposed program. The new faculty member will administer the initial program, advise students, and teach core courses in the proposed program. The position will require a doctoral degree in a health or pharmaceutical science or a closely related field. The new faculty member will be hired at the rank of Assistant or Associate Professor. Additional faculty members will be hired over the first five years, with the numbers depending on program enrollment.

Eight faculty members in the Department of Medicinal Chemistry will teach the required medicinal chemistry courses. Each faculty member will have a doctorate in medical chemistry or a related field. The faculty members will have appropriate teaching experience to teach in the proposed program.

Three faculty members in the Department of Pharmaceutics will teach the required pharmaceutics courses. Each faculty member will have a doctorate in pharmaceutics or a related field. The faculty member will have appropriate teaching experience to teach in the proposed program.

Three faculty members in the Department of Pharmacotherapy and Outcomes Sciences will teach the required practice-related courses. Each faculty member will have a Doctor of Pharmacy (PharmD) or doctorate in a related field. The faculty members will have appropriate teaching experience to teach in the proposed program.

See pages 24-25 for estimates of faculty resource needs from the College of Humanities and Sciences, departments of Biology, Chemistry, Mathematics and Applied Mathematics, and Statistics and Operations Research.

See Appendix C for the faculty curriculum vitae (abbreviated).

Student Learning Assessment

Every student who completes the proposed BS in Pharmaceutical Sciences will develop the appropriate knowledge, skills and abilities to address problems in pharmaceutical sciences. Student learning will be assessed throughout the program using a variety of formative and summative measures. Assessment measures will include, but not be limited to, written individual and group assignments, quizzes, tests, and projects assigned during classroom instruction.

The learning outcomes will be tracked, recorded, and analyzed through VCU's accountability management system Taskstream by Watermark™. Data analyses of students' progress will be performed every semester and the results will be recorded annually in the Taskstream system.

During the capstone experiences, students will be evaluated and assessed by on-site professionals as well as university faculty supervisors. Each of these professionals will direct/prescribe activities and experiences. All supervisors monitor and note students' performance during multiple observations. Each will write reviews of performance as both formative and summative evaluations. The students will be required to submit formative and summative reflections on their internship experiences. These reflections will be incorporated into the final assessment of the on-site professionals' and the university supervisors' accounts.

<u>Learning Outcomes</u>
Students will be able to:

- Describe the concepts of basic and biomedical sciences related to pharmaceutical sciences
- Identify the processes, methods, and tools used to discover, develop and approve new drug products
- Apply principles of multidisciplinary sciences to solve problems in drug product development
- Describe the U.S. health care system and roles of health care providers
- Use tools, experimental techniques, skills, and the scientific method to address problems in pharmaceutical sciences
- Apply critical thinking, team science, and advanced problem-solving skills to complex societal health problems
- Demonstrate proficiency in scientific literacy and professional communication skills, including writing, presenting, literature searching, reading, and critically reviewing scientific work
- Demonstrate a basic understanding of professional and ethical conduct within the pharmaceutical sciences context

Curriculum map for the BS in Pharmaceutical Sciences

Learning Outcomes	**Core or Required Courses**	**Assessment Measures**
Describe the concepts of basic and biomedical sciences related to pharmaceutical sciences	PSCI 101. Career Exploration in Pharmacy and Pharmaceutical Sciences I PSCI 102. Career Exploration in Pharmacy and Pharmaceutical Sciences II PSCI 201. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development I PSCI 202. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development II PSCI 320. Molecules to Medicine I PSCI 330. Molecules to Medicine II PSCI 370. Drug Dosage Form Development PSCI 420. Molecules to Medicine III PSCI 430. Principles of Drug Action PSCI 450. Advances in Molecular and Cellular Therapy	Formative: Homework and quizzes Summative: Reflection, multiple-choice exam
Identify the processes, methods, and tools used to discover, develop, and approve new drug products	PSCI 201. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development I PSCI 320. Molecules to Medicine I PSCI 330. Molecules to Medicine II PSCI 370. Drug Dosage Form Development	Formative: Homework and quizzes Summative: Multiple-choice and free-response exam

	PSCI 410. Analytical Methods in the Pharmaceutical Sciences I PSCI 420. Molecules to Medicine III PSCI 430. Principles of Drug Action PSCI 450. Advances in Molecular and Cellular Therapy	
Apply principles of multidisciplinary sciences to solve problems in drug product development	PSCI 201. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development I PSCI 330. Molecules to Medicine II PSCI 370. Drug Dosage Form Development PSCI 410. Analytical Methods in the Pharmaceutical Sciences I PSCI 415. Analytical Methods in the Pharmaceutical Sciences II PSCI 420. Molecules to Medicine III	Formative: Homework and quizzes Summative: Multiple-choice and free-response exam
Describe the U.S. health care system and roles of health care providers	PSCI 102. Career Exploration in Pharmacy and Pharmaceutical Sciences II PSCI 202. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development II PSCI 330. Molecules to Medicine II PSCI 420. Molecules to Medicine III	Formative: Discussion Summative: Multiple-choice and free-response exam
Use tools, experimental techniques, skills, and the scientific method to address problems in pharmaceutical sciences	PSCI 320. Molecules to Medicine I PSCI 330. Molecules to Medicine II	Formative: Homework, graded assignments, lab participation, lab write-ups

	PSCI 410. Analytical Methods in the Pharmaceutical Sciences I PSCI 415. Analytical Methods in the Pharmaceutical Sciences II PSCI 420. Molecules to Medicine III PSCI 481. Capstone Experience in Pharmaceutical Sciences I PSCI 482. Capstone Experience in Pharmaceutical Sciences II	including calculations and data analysis, quizzes <u>Summative:</u> Multiple-choice and free-response exam
Apply critical thinking, team science, and advanced problem-solving skills to complex societal health problems	PSCI 101. Career Exploration in Pharmacy and Pharmaceutical Sciences I PSCI 102. Career Exploration in Pharmacy and Pharmaceutical Sciences II PSCI 330. Molecules to Medicine II PSCI 410. Analytical Methods in the Pharmaceutical Sciences I PSCI 415. Analytical Methods in the Pharmaceutical Sciences II PSCI 450. Advances in Molecular and Cellular Therapy PSCI 481. Capstone Experience in Pharmaceutical Sciences I PSCI 482. Capstone Experience in Pharmaceutical Sciences II	<u>Formative:</u> Graded assignments, lab participation, lab write-ups including calculations and data analysis, quizzes <u>Summative:</u> Multiple-choice exam, group presentation, paper, reflection
Demonstrate proficiency in scientific literacy and professional communication skills, including writing, presenting, literature searching, reading, and critically reviewing scientific work	PSCI 201. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development I PSCI 202. Introduction to the Pharmaceutical	<u>Formative:</u> Graded assignments, lab participation, lab write-ups including calculations and data analysis, quizzes <u>Summative:</u>

	Sciences and Pharmaceutical Product Development II PSCI 350. Social and Behavioral Influences on Medication Use PSCI 410. Analytical Methods in the Pharmaceutical Sciences I PSCI 415. Analytical Methods in the Pharmaceutical Sciences II PSCI 450. Advances in Molecular and Cellular Therapy PSCI 493. Capstone Seminar in Pharmaceutical Sciences I PSCI 494. Capstone Seminar in Pharmaceutical Sciences II	Multiple-choice exam, group presentation, paper
Demonstrate a basic understanding of professional and ethical conduct within the pharmaceutical sciences context	PSCI 102. Career Exploration in Pharmacy and Pharmaceutical Sciences II PSCI 350. Social and Behavioral Influences on Medication Use PSCI 450. Advances in Molecular and Cellular Therapy PSCI 481. Capstone Experience in Pharmaceutical Sciences I PSCI 482. Capstone Experience in Pharmaceutical Sciences II PSCI 493. Capstone Seminar in Pharmaceutical Sciences I PSCI 494. Capstone Seminar in Pharmaceutical Sciences II	Formative: Class discussions, oral presentations and written assignments, tests and quizzes Summative: Reflection

Employment Skills

Graduates of the proposed BS in Pharmaceutical Sciences program will be qualified to work in a variety of settings, including but not limited to, pharmaceutical and biotechnology companies, research facilities, regulatory agencies such as the Food and Drug Administration, and laboratories such as the National Institutes of Health. In alignment with the program learning outcomes, all graduates of the proposed BS in Pharmaceutical Sciences program will be able to:

- Demonstrate an understanding of the processes, methods, and tools used to discover, develop, and approve new drug products and understand concepts related to a broad range of basic and biomedical sciences. (Learning outcome: Identify the processes, methods, and tools used to discover, develop, and approve new drug products)
- Demonstrate an understanding of the design of dosage forms such as tablets, injections, or patches that will be delivered to patients. (Learning outcome: Describe the concepts of basic and biomedical sciences related to pharmaceutical sciences)
- Demonstrate an understanding of the governmental regulation involved in the development, approval, and distribution of pharmaceutical products. (Learning outcome: Demonstrate a basic understanding of professional and ethical conduct within the pharmaceutical sciences context)
- Operate pharmaceutical instrumentation. [Learning outcome: Use tools, experimental techniques, skills, and the scientific method to address problems in pharmaceutical sciences (e.g., operate pharmaceutical instrumentation)]
- Apply experimental techniques and scientific methods to solve problems in pharmaceutical sciences. (Learning outcome: Apply principles of multidisciplinary sciences to solve problems in drug product development)
- Apply critical thinking, team science, and advanced problem-solving skills to complex societal health problems. (Learning outcome: Apply critical thinking, team science, and advanced problem-solving skills to complex societal health problems)
- Acquire, assess, and evaluate scientific information. (Learning outcome: Demonstrate proficiency in scientific literacy and professional communication skills, including writing, presenting, literature searching, reading, and critically reviewing scientific work)
- Work collaboratively with other workplace professionals. (Learning outcome: Describe the U.S. health care system and roles of health care providers)
- Demonstrate professional and ethical conduct within the pharmaceutical sciences and health care. (Learning outcome: Demonstrate a basic understanding of professional and ethical conduct within the pharmaceutical sciences context)
- Communicate effectively scientific content and concepts both orally and in writing. (Learning outcome: Demonstrate a basic understanding of professional and ethical conduct within the pharmaceutical sciences context)

Relationship to Existing VCU Degree Programs

The proposed BS in Pharmaceutical Sciences is not similar to or related to any other existing degree program and will not compromise any existing degree program at Virginia Commonwealth University. Students will learn concepts of drug discovery, drug design, drug delivery, drug action, clinical analysis, drug analysis, and cost effectiveness. The proposed

program is designed to attract Virginia students who are now going to out-of-state universities to complete a BS degree in Pharmaceutical Sciences. There is one BS in Pharmaceutical Sciences program at a private university in Virginia (Hampton University) and 27 BS in Pharmaceutical Sciences programs in other states. No degree programs will close because of the initiation and operation of the proposed degree program. The proposed degree program will be distinctly different from existing bachelor's degrees in chemistry and biology because of the emphasis on pharmaceutical science courses.

Justification for the Proposed Program

Response to Current Need
(Specific Demand)

The need for continued advancement in pharmaceuticals is self-evident. The discovery of new therapeutic modalities has extended the duration and quality of countless lives, and future progress will help more people. The process of discovery requires a constant influx of well-trained professionals to drive research forward, bring products to market, and ensure that all people and communities benefit equally from advancements. Without a pharmaceutical sciences bachelor's degree program at a public university, Virginia is at risk of failing to train enough qualified workers, which would have a negative impact on emerging pharmaceutical hubs throughout the state.

Beyond the obvious importance for longevity and quality of life, good health has positive economic effects. The Preston Curve suggests a positive relationship between gross domestic product (GDP) per capita and life expectancy.[6] Advancements in modern medicine are often associated with increases in life expectancy and decreases in infant mortality. Given the positive health impacts and economic impact pharmaceuticals make, a clear need to train qualified pharmaceutical professionals exists. The proposed BS degree program in Pharmaceutical Sciences will introduce students to key ideas in pharmaceutical science disciplines such as medicinal chemistry, pharmacy, pharmacology, toxicology, drug discovery and development, drug delivery, and health outcomes. At the conclusion of their studies, graduates will be prepared to either enter the private pharmaceutical sector or flow seamlessly into graduate programs or professional programs such as a Doctor of Pharmacy or Doctor of Medicine. Both types of workers (entry level and advance trained) are necessary to ensure pharmaceuticals can continue to improve quality of life.

Keeping Talented Students in Virginia

Public colleges and universities have historically served their state residents, but the number of out-of-state first-year students attending in-state institutions has nearly doubled since 1986, according to U.S. Department of Education data. The proposed program would provide students interested in employment in biotechnology or pharmaceutical manufacturing industry or in pursuing a Doctor of Pharmacy degree the opportunity to pursue undergraduate pharmaceutical education in Virginia. At present, students interested in undergraduate study in pharmaceutical sciences most often leave Virginia to study at other universities that offer a BS in Pharmaceutical Sciences (such as the University of Georgia, University of South Carolina, Ohio State University, University of Michigan, Northeastern University, University of Connecticut, and University of Arizona). Only one BSPS program exists in Virginia, at Hampton University (private). Approval of this proposal will allow Virginia undergraduate students to study pharmaceutical sciences at a public institution within the Commonwealth of Virginia, possibly reducing the total cost of the student's undergraduate education. The BS in Pharmaceutical Sciences is an emerging degree program. Currently, there are 27 BS in Pharmaceutical Sciences degree programs at colleges and schools of pharmacy nationwide. Four VCU peer institutions

[6] Wolfgang Lutz, Endale Kebede, "Education and Health: Redrawing the Preston Curve." https://onlinelibrary.wiley.com/doi/full/10.1111/padr.12141

identified by the State Council of Higher Education for Virginia (SCHEV) offer the degree program. VCU would be the first public institution in Virginia to offer a standalone BS in Pharmaceutical Sciences program.

Virginia should make targeted investments in educational programs that address the workforce needs in the Commonwealth of Virginia and retain talented students in the Commonwealth. "The success of the Tech Talent Investment Program adopted in connection with Amazon's large Virginia investment shows that our higher education institutions will respond creatively when a clear degree or credential target is identified, and funds are set aside."[7] "We [Virginia] should use that successful model to help meet other high-demand workforce needs, especially in health care where today's severe workforce shortages will continue unless we take creative and decisive action now."[8] VCU needs the proposed program to attract and retain Virginia students in degree programs offered in Virginia, rather than losing students to out-of-state colleges and universities.

The Growth of Pharmaceuticals

In addition to health benefits, pharmaceuticals represent a large part of the United States' economy. Continuing to support the pharmaceutical workforce will ensure that this sector remains robust, and continued job growth will ensure that graduates of the proposed program will find opportunities upon graduation. In 2014, "total pharmaceutical revenues worldwide exceeded 1 trillion United States dollars (USD) for the first time. The market has been growing at an annual rate of 5.8% since 2017. In 2017, worldwide pharmaceutical market revenue was USD 1143 billion and will reach 1462 billion USD in 2021."[9] Although much of this growth is concentrated in the United States, demand continues to increase in the rest of the world. "The largest fraction of these revenues corresponds to North America due to the leading role of the U.S. pharmaceutical industry … [but] pharmaceutical consumption worldwide was also growing, partly driven by a growing need for drugs to treat ageing-related and chronic diseases and changes in clinical practice."[10] Unsurprisingly, such a large industry employs many people. "The U.S. biopharmaceutical industry contributes substantially to national, state, and local economies by employing more than 811,000 individuals in 2017. This industry also supports approximately 3.2 million additional U.S. jobs through its varied supply base and from the additional economic impacts stemming from industry and worker spending. Altogether, the U.S. biopharmaceutical industry directly and indirectly supported more than 4.0 million U.S. jobs in 2017."[11] The proposed BS degree program in Pharmaceutical Sciences would address the need for qualified candidates for jobs in the pharmaceutical industry and help ensure its continued growth.

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[7] Https://Roanoke.com/Opinion/Columnists/Agee-and-Fralin-a-Key-Moment-to-Invest-in-Affordable-Talent-Pathways/article_2200ee00-7982-11ec-9bc7-c3ee010d934f.Html

[8] Ibid.

[9] Omar Israel González Peña, Miguel Ángel López Zavala, and Héctor Cabral Ruelas, "Pharmaceuticals Market, Consumption Trends and Disease Incidence Are Not Driving the Pharmaceutical Research on Water and Wastewater," *International Journal of Environmental Research and Public Health,* 2021:18(5), published online, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7967517/#B1-ijerph-18-02532

[10] Ibid.

[11] TEConomy Partners, LLC and PhRMA, "The Economic Impact of the U.S. Biopharmaceutical Industry: 2017 National and State Estimates," https://www.phrma.org/-/media/Project/PhRMA/PhRMA-Org/PhRMA-Org/PDF/D-F/Economic-Impact-US-Biopharmaceutical-Industry-December-2019.pdf

Demand for pharmaceuticals has increased due to the COVID-19 pandemic, and observers expect the search for vaccines to continue into at least the medium-term future. "It is clear that in 2020 the COVID-19 pandemic has modified and will continue modifying the pharmaceutical market and in the coming years in terms of revenues and investment in new chemical and biological entities due to the efforts to generate a greater amount and more effective vaccines against the SARS-CoV-2 virus."[12] The impact of the COVID-19 pandemic on long-term health outcomes is yet unknown, but those who survive serious infection may face increased health challenges as they age. Such challenges may increase reliance on pharmaceuticals.

In the future, demand for pharmaceuticals is expected to grow. The aging U.S. population will need both an increasing number of pharmaceuticals and the aid of qualified pharmaceutical professionals and health care providers.

> The demand for pharmacists to provide direct patient care[13] is expected to increase within the foreseeable future. This is mainly because of two contributing factors: the increase in the United States (U.S.) average life expectancy from 75.3 years in 1990 to 78.8 years in 2012 and the increased prevalence of chronic diseases (living longer, but sicker), propelling the ever-increasing demand for prescription drugs. Indeed, from 1990 to 2010, the number of dispensed prescriptions for drugs has almost doubled (from 1.9 to 3.7 billion).[14]

The role that pharmaceuticals and pharmaceutical professionals play in people's health care treatments is expected to change and grow, requiring both increased workers and the forward-looking curriculum this proposal describes. Deloitte believes that "as innovations in life sciences and new technology disrupt the health care value chain, consumers are increasingly focused on well-being, demanding greater health care access, convenience, and customized products. In this environment, exciting opportunities emerge for pharmacists to evolve and expand their role … perhaps even to become the next generation of primary care providers (PCPs) who treat patients with acute illnesses and manage chronic conditions like diabetes, hypertension, and asthma." The proposed BS program is necessary to ensure an adequate pipeline of students into doctor of pharmacy programs, and would provide excellent preparation for the next generation of pharmacists.[15]

<u>Preparing Students for Increased Employment Opportunities</u>

The global pharmaceuticals market is expected to grow to $1250.24 billion in 2021 at a compound annual growth rate (CAGR) of 1.8%.[16] Pharmaceutical companies are offering drugs

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[12] Ibid.

[13] Direct patient care refers to the provision of health care services directly to patients being treated for, or suspected of, having physical or mental illnesses. This includes the administration of medication or pharmaceutical products.

[14] Mahtab Jafari, "A unique degree program for pre-pharmacy education: An undergraduate degree in pharmaceutical sciences," *Currents in Pharmacy Teaching and Learning,* 2010:10(2), page 243, https://www.sciencedirect.com/science/article/abs/pii/S1877129716303793

[15] Deloitte, "The Future of Pharmacy." https://www2.deloitte.com/us/en/pages/life-sciences-and-health-care/articles/future-of-pharmacy-disruption-opportunities-challenges.html

16 Research and Markets. (2021, March 31). Global Pharmaceuticals Market Report 2021: Market is expected to grow from $1228.45 billion in 2020 to $1250.24 billion in 2021 - long-term forecast to 2025 & 2030.

for customized individual treatment for various diseases. The emergence of personalized medicine, also referred to as precision medicine, will provide drug therapy according to the patient's individual characteristics and genetic makeup. The growth taking place in the pharmaceutical industry provides significant opportunities for graduates with a BS in Pharmaceutical Sciences and opens several avenues to work in the pharmaceutical field. "Pharmaceutical science programs may open a variety of career opportunities for individuals interested in drugs and medicine. Graduates of degree programs may be qualified to work as pharmacists, pharmacological researchers, or pharmaceutical sales representatives."[17] To work as a pharmacist or a pharmaceutical researcher, students need to secure additional qualifications including a PharmD or PhD, and the proposed program will prepare students for both paths. Graduates with a BS in Pharmaceutical Sciences can secure employment as pharmaceutical sales representatives, production managers, analytical scientists, and associate scientists among other positions.

> An example of one career opportunity: Pharmaceutical sales representatives are responsible for representing drug companies and their medications to physicians and other potential customers. They interact with health care professionals and keep abreast of current developments in the pharmaceutical sciences. They may provide advice to clients, such as hospitals or clinics, regarding the indications (reasons for prescribing medication), uses and side effects of the medications of the company that they represent…. [T]he mean annual salary for pharmaceutical sales representatives was $92,980 as of May 2019. The US Bureau of Labor Statistics anticipated that employment for sales representatives in general would increase at average by 4% between 2019 and 2029.[18]

Graduates of a BS in Pharmaceutical Sciences program are also prepared to be "employed for entry-level positions in the pharmaceutical and cosmetics industries, government and specialty laboratories, and biotechnology companies. Specific positions exist in product development, research, production/manufacturing, quality control/quality assurance, technical services, regulatory affairs, and packaging of products."[19]

Due to the growth of Central Virginia's pharmaceutical industry, demand for graduates of the proposed program is likely to be high in VCU's primary service area. At least two large pharmaceutical manufacturing plants exist in Central Virginia.

> AMPAC Fine Chemicals is expanding its plant on Normandy Drive in Petersburg. The company has a partnership with the Richmond-based pharmaceutical development company Phlow, which also is planning to open a production site adjacent to the AMPAC plant…. Another pharmaceutical manufacturer is Civica,

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GlobeNewswire News Room. Retrieved February 23, 2022, from https://www.globenewswire.com/news-release/2021/03/31/2202135/28124/.

17 Best Accredited Colleges, "Career Info for a Pharmaceutical Sciences Degree," 2021. https://bestaccreditedcolleges.org/articles/career-information-for-a-degree-or-certification-in-pharmaceutical-sciences.html

[18] Ibid

[19] Rabaa M. Al-Rousan, "Availability, Uniqueness and Perceived Value of Bachelor of Science in Pharmaceutical Sciences (BSPS) Programs in the United States, *Pharmacy,* 2, 1-16. https://doi.org/10.3390/pharmacy2010001

> a nonprofit organization formed by various U.S. health care providers to address chronic generic drug shortages. Civica is spending $124.5 million to establish its first in-house pharmaceutical manufacturing operation on Normandy Drive across from the AMPAC factory.[20]

The region continues to try to attract additional pharmaceutical investment.

> The Richmond region is vying for $100 million in federal grant funding to create a hub for the pharmaceuticals industry. A coalition of government, academic, business, and economic partnerships in the Richmond area hopes to use the funding to help build up the pharmaceutical industry in central Virginia that can provide a national supply of essential medicines that have often been shifted to overseas production in recent years.[21]

Even if the region does not receive this award, the application demonstrates the increased commitment to growing its pharmaceutical sector among a significant coalition of stakeholders. The Commonwealth needs the proposed program to respond to the projected growth of pharmaceutical workforce.

See Appendix D for the list of colleges and universities with a BS in Pharmaceutical Sciences program.

Employment Demand

Graduates of the proposed BS in Pharmaceutical Science degree program will be qualified to work in a wide range of in-demand occupations in industry, health care, and life sciences. Potential occupations in the health care field include medical scientists, except epidemiologists, and medical and health services managers. For students interested in the life sciences, the degree program will prepare them for jobs in the biomedical, pharmaceutical, and health care fields. All these options can help improve or saves people's lives. Because "the large baby-boom population ages and people remain[ing] active later in life,"[22] a greater need exists for workers in health care services.

Job growth related to pharmaceutical science occupations is expected in both Virginia and the nation. The Bureau of Labor Statistics (BLS) finds that employment for medical scientists, except epidemiologists, is "projected to grow 17 percent from 2020 to 2030, much faster than the average for all occupations."[23] In fact, the growth rate for medical scientists is double the projected growth rate for all occupations during this period (8%). The BS in Pharmaceutical

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[20] John Reid Blackwell, "Local coalition wins $500,000 federal grant to create pharmaceutical hub project, seeking up to $100 million more," *The Richmond Times-Dispatch,* December 30, 2021. https://richmond.com/business/local/local-coalition-wins-500-000-federal-grant-to-create-pharmaceutical-hub-project-seeking-up-to/article_f623b985-275e-5543-a3f8-53c5d174a4bd.html

[21] Ibid

[22] The U.S. Bureau of Labor Statistics. Occupational Outlook Handbook https://www.bls.gov/ooh/management/medical-and-health-services-managers.htm?view_full#tab-6

[23] The U.S. Bureau of Labor Statistics. Occupational Outlook Handbook https://www.bls.gov/ooh/life-physical-and-social-science/medical-scientists.htm#tab-6

Sciences leads graduates into these advanced fields. One reason for this anticipated growth is the COVID-19 pandemic which has led to "increased demand for medical scientists."[24] An aging population, which will require treatment for diseases like Alzheimer's and other types of dementias, will also increase demand for medical scientists. The BLS also notes that medical scientists will be needed "as a growing population travels globally and facilitates the spread of diseases." From 2018 through 2028, the Virginia Employment Commission (VEC), Labor Market Intelligence (LMI) estimates employment growth will be 8.02% for medical scientists, except epidemiologists. This growth is greater than the average for all occupations (6.6%).[25]

The BLS projects that employment for medical and health services managers will grow "32 percent from 2020 to 2030, much faster than the average for all occupations."[26] Manager positions exist at various levels, approximately one third requiring a BS degree and others requiring more advanced degrees.[27] Greater demand for health care workers will increase demand for medical and health services managers to organize and lead these teams. The BLS also attributed increased job openings to "the need to replace workers who transfer to different occupations or exit the labor force, such as to retire."[28] Graduates from this program will be qualified to replace the current workforce and "plan, direct, and coordinate medical and health services" for Virginia. For medical and health services managers, VEC projects that the growth for these occupations will be 18%, almost triple the projected growth for all occupations in Virginia.[29] The data show that demand for medical and health services managers will be strong.

For biochemists and biophysicists, employment is "projected to grow five percent from 2020 to 2030" nationally, which is slightly slower than the average for all occupations.[30] However, these occupations "will continue to be needed to do basic research that increases scientific knowledge and to research and develop biological products and processes that improve people's lives." Graduates in these roles "will be needed to conduct genetic research and to develop new medicines and treatments that are used to fight genetic disorders and diseases."[31] The COVID-19 pandemic may also lead to an increased demand, as these occupations can play a role in the creation of medicines to fight viruses and diseases. The Virginia Employment Commission, Labor Market Information (LMI) database shows that there is demand in Virginia for biochemists and biophysicists. From 2018 through 2028, the total employment growth is expected to be 7.3%, which is greater than the projected growth for all occupations (6.6%).[32]

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[24] Ibid. https://www.bls.gov/ooh/life-physical-and-social-science/medical-scientists.htm#tab-6
[25] Virginia Employment Commission, Labor Market Information https://virginiaworks.com/Occupational-Projections
[26] Ibid. https://www.bls.gov/ooh/management/medical-and-health-services-managers.htm?view_full#tab-6
[27] Data from JobsEQ* Education and Training Requirements, Medical and Health Services Managers. Provided upon request.
[28] Ibid. https://www.bls.gov/ooh/management/medical-and-health-services-managers.htm?view_full#tab-6
[29] Virginia Employment Commission, Labor Market Information https://virginiaworks.com/Occupational-Projections
[30] The U.S. Bureau of Labor Statistics. Occupational Outlook Handbook https://www.bls.gov/ooh/life-physical-and-social-science/biochemists-and-biophysicists.htm#tab-6
[31] Ibid. https://www.bls.gov/ooh/life-physical-and-social-science/biochemists-and-biophysicists.htm#tab-6
[32] Virginia Employment Commission, Labor Market Information https://virginiaworks.com/Occupational-Projections

Medical scientists, except epidemiologists, and biochemists and biophysicists require doctoral or professional degrees. In these two cases, the proposed program will prepare students for graduate school or professional degree programs in health care that can lead into these important careers. Medical and health services managers require only a bachelor's degree and is the occupation with the most projected jobs added and highest projected growth rate for the next ten years. These trends indicate that students who finish the BS in Pharmaceutical Sciences but do not continue to graduate school will still have good career options available.

Labor Market Information: Virginia Employment Commission, 2018-2028 (10-Yr)

Occupation Title	Base Year Employment	Projected Employment	Total % change	Annual Change	Education
Medical scientists, except epidemiologists [33]	1809	1954	8.0	14	Doctoral or Professional Degree
Medical and health services managers[34]	8210	9712	18.3	150	Bachelor's Degree
Biochemists and biophysicists[35]	451	484	7.3	3	Doctoral or Professional Degree

See Appendix F for job announcements.
See Appendix G for letters of support.

Duplication

Virginia Commonwealth University would be the first public institution in Virginia to offer a standalone BS degree program in Pharmaceutical Sciences. No public institution in the state offers a similar or related degree program.

Student Demand

In February 2022 at the request of VCU, the School of Pharmacy evaluated student demand for the proposed BS in Pharmaceutical Sciences by conducting a survey of the following populations of students: 300 freshman and sophomore students at Virginia Commonwealth University with undeclared majors from the College of Humanities and Sciences, including 65 students enrolled in the Pre-Pharmacy Advising track, and 85 students who are members of the VCU Pre-Pharmacy Student Organization.

Survey

[33] Ibid. https://virginiaworks.com/Occupational-Projections
[34] Ibid. https://virginiaworks.com/Occupational-Projections
[35] Ibid. https://virginiaworks.com/Occupational-Projections

VCU administered an online survey to 300 degree-seeking students enrolled in the College of Humanities and Sciences with undeclared majors. There were 37 responses from the student participants. The first question asked was the most relevant to the level of student interest in the proposed program. The question stated, *If VCU offered a BS in Pharmaceutical Sciences program, how likely would you be to enroll?*

26 respondents indicated "Very likely" (70%)
7 respondents indicated "Likely" (19%)
4 respondents indicated "Somewhat likely" (11%)

Of those who responded to the survey, 23 (62%) were freshmen, 11 (30%) were sophomores, and 3 (8%) were categorized as other.

See Appendix G for a copy of the student demand survey. Results of the survey are included separately and are located after the original survey.

State Council of Higher Education for Virginia
Summary of Projected Enrollments in Proposed Program

Year 1		Year 2		Year 3		Year 4 **Target Year (2-year institutions)**			Year 5 **Target Year (4-year institutions)**		
2023 - 2024		2024 - 2025		2025 - 2026		2026 - 2027			2027 - 2028		
HDCT 36	FTES 30	HDCT 50	FTES 68	HDCT 75	FTES 90	HDCT 100	FTES 90	GRAD	HDCT 100	FTES 100	GRAD 90

Assumptions
Retention percentage: 80%
Percentage of full-time students: 90%
Percentage of part-time students: 10%
Full-time students credit hours per semester: 15
Part-time students credit hours per semester: 6
Full-time students graduate in 4 years
Part-time students graduate in 6 years

Projected Resource Needs for the Proposed Program

Resource Needs

Virginia Commonwealth University and the School of Pharmacy have the faculty, classified support, equipment, space, library, and other resources needed to initiate and sustain the proposed BS in Pharmaceutical Sciences. Additional faculty resources will be required from the College of Humanities and Sciences departments of Biology, Chemistry, Mathematics and Applied Mathematics, and Statistics and Operations Research. The following subsections detail the resources required to operate the program from its initiation in the fall 2023 semester through the target year of 2026-2027. Assessments of the need for full-time, part-time, and adjunct faculty are based on a ratio of 1.0 FTE of instructional effort for every 12 FTE students in lower-division courses and 10 FTE students in upper-division courses. The proposed program will require a total of 5.3 faculty FTE instructional effort in 2023-2024, rising to 16.5 faculty FTE instructional effort in the target enrollment year, 2026-2027.

Full-Time Faculty
The School of Pharmacy Dean's Office will hire one faculty member to serve as program director and advisor to support the proposed program in the initiation year. The program director will provide 1.0 FTE of instructional support for the proposed program in the initiation year and will remain constant through the target year. Salary for the program director will be $120,000 and benefits $48,360.

Part-time Faculty
The proposed degree program will require a total of 10.0 FTE part-time faculty FTE instructional effort to teach core and required courses. In the initiation year, 2023-2024, the proposed program will require 4.3 FTE of instructional effort and will rise to 15.5 FTE by the target year, 2026-2027.

The Department of Medical Chemistry will provide 0.15 FTE part-time faculty FTE instructional effort in the initiation year and will rise to 3.00 part-time faculty FTE instructional effort by the target year, 2026-2027.

The Department of Pharmaceutics will provide 0.15 FTE FTE part-time faculty FTE instructional effort in the initiation year and will rise to 3.00 part-time faculty FTE instructional effort by the target year, 2026-2027.

The Department of Pharmacotherapy and Outcomes Science will provide 0.00 FTE part-time faculty FTE instructional effort in the initiation year and will rise to 2.00 part-time faculty FTE instructional effort by the target year, 2026-2027.

The Department of Biology in the College of Humanities and Sciences will provide 1.50 FTE part-time faculty FTE instructional effort in the initiation year and will increase to 3.0 FTE part-time faculty FTE instructional effort by the target year, 2026-2027.

The Department of Chemistry in the College of Humanities and Sciences will provide 1.5 5 FTE part-time faculty FTE instructional effort in the initiation year and will increase to 3.25 FTE part-time faculty FTE instructional effort by the target year, 2026-2027.

The Department of Mathematics and Applied Mathematics in the College of Humanities and Sciences will provide 1. 5 FTE part-time faculty FTE instructional effort in the initiation year and will remain at 1.0 FTE part-time faculty FTE instructional effort by the target year, 2026-2027.

The Department of Statistics and Operations Research in the College of Humanities and Sciences will provide 0 5 FTE part-time faculty FTE instructional effort in the initiation year and will increase to 0.25 FTE part-time faculty FTE instructional effort by the target year, 2026-2027.

Adjunct Faculty
Adjunct faculty will not be required to initiate or sustain the proposed program.

Graduate Assistants
Two graduate assistants are required to initiate or sustain the core courses of the proposed degree program beginning fall 2025. The graduate assistants will be supported by School resources and tuition revenue. Salary for each graduate assistant will be $29,000 and benefits $10,000.

Classified Positions
One academic advisor will provide advising services and student support for the proposed degree program. The program will require 1.0 FTE of academic advising support to initiate the program and this level will remain constant through the target year. The salary for the academic advisor will be $50,000 and $17,644 in benefits.

Equipment (including computers)
The proposed program will require additional resources for laboratory equipment used in core courses that will be first offered in fall 2025. Equipment may be available from surplus in the School or can be purchased new. The School of Pharmacy projects $200K will be needed by the target year for equipment.

Library
No new Library resources are needed to initiate and sustain the proposed program. The library has sufficient and appropriate journals, books, online journals to support the proposed degree program. Library resources are available to off-campus students through VCU's contract for online subscription services. VCU is a member of the Virtual Library of Virginia (VIVA), which is a consortium of academic libraries in Virginia. All VCU students have access to the interlibrary loan program.

Telecommunications
No new or additional resources are required to initiate or sustain the proposed degree program.

Space
Approximately 1200 square feet of laboratory space will be needed for core courses, beginning in 2025. This space will be identified from existing labs in the School, surplus laboratory space on the MCV campus, or by renovation of existing space. Resources will be made available to ensure the space is suitable. The program has adequate space for classrooms, meetings, and offices.

Targeted Financial Aid
No targeted financial aid will be offered to initiate and sustain the proposed degree program.

Special Tuition or Fee Charges
No special tuition or fee charges will be needed to initiate and sustain the proposed degree program.

Other Resources (specify)
No other resources are needed to initiate and sustain the proposed degree program. No resources are needed for advertising and promotion of the proposed degree program.

Funds to Initiate and Operate the Degree Program
Figures provided in the table below will be compared to SCHEV funding estimates using the current base adequacy model. This comparison will serve as a reference for the estimated costs. If there are large discrepancies, SCHEV may request additional clarification to ensure the institution's assumptions are correct, or require modifications as a condition of approval.

Note: Institutions must use the recommended student-faculty ratio when estimating FTE enrollments and required faculty FTEs.

Cost and Funding Sources to Initiate and Operate the Program			
Informational Category		**Program Initiation Year 2023 - 2024**	**Program Full Enrollment Year[1] 2026 - 2027**
1.	Projected Enrollment (Headcount)	36	100
2.	Projected Enrollment (FTE)	30	100
3.	Projected Enrollment Headcount of In-State Students	25	80
4.	Projected Enrollment Headcount of Out-of-State Students	5	20
5.	Estimated Annual Tuition and E&G Fees for In-state Students in the Proposed Program	$12.094	$13,091
6.	Estimated Annual Tuition and E&G Fees for Out-of-State Students in the Proposed Program	$32,742	$34,746
7.	Projected Total Revenue from Tuition and E&G Fees Due to the Proposed Program	$466,060	$1,742,200
8.	Other Funding Sources Dedicated to the Proposed Program (e.g., grant, business entity, private sources)	$0	$0

[1] For the "Full Enrollment Year" use: for associate degrees, initiation year plus 1; for baccalaureate degrees, initiation plus 3; for masters degrees, initiation plus 2; for doctoral degrees, initiation plus 3.

Part V: Certification Statements

1. A request of any kind will be submitted to the General Assembly for funds to initiate and/or maintain the proposed degree program.

   Yes ☐

   No ☒

   If "Yes" is checked, include narrative text to describe: when the request will be made, how much will be requested, what the funds will be used for, and what will be done if the request is not fulfilled.

2. The proposed degree program is included in the institution's most recent six-year plan.

   Yes ☒

   No ☐

   If "No" is checked, include narrative text to explain why the program is being advanced at the present time despite not being included in the six-year plan.

3. The institution's governing board has been provided information regarding duplication (if applicable) and labor market projections as part of its approval action.

   Yes ☒

   No ☐

   If "No" is checked, include narrative text to explain why the governing board has not been provided the information.

The institution's Chief Academic Officer attests to the accuracy of the above statements

Fotis Sotiropoulos, Ph.D.

Name (Printed)

Signature Date

Appendices

Appendix A – Sample Plan of Study

Sample Plan of Study for Full-Time Students

Year	Fall Semester	Credits	Spring Semester	Credits
Freshman	CHEM 101. General Chemistry I	3	CHEM 102. General Chemistry II	3
	CHEZ 101. General Chemistry Lab I	1	CHEZ 102. General Chemistry Lab II	1
	BIOL 151. General Biology I	3	BIOL 152. General Biology II	3
	BIOZ 151. General Biology I Lab	1	BIOZ 152. General Biology II Lab	1
	MATH 151. Pre-calculus Mathematics	4	MATH 200. Calculus with Analytic Geometry I	4
	UNIV 111. Focus Inquiry I	3	UNIV 112. Focus Inquiry II	3
	PSCI 101. Career Exploration in Pharmacy and Pharmaceutical Sciences I	1	PSCI 102. Career Exploration in Pharmacy and Pharmaceutical Sciences II	1
	Total	**16**	**Total**	**16**
Sophomore	CHEM 301. Organic Chemistry I	3	CHEM 302. Organic Chemistry II	3
	CHEZ 301. Organic Chemistry II Lab	2	CHEZ 302. Organic Chemistry Lab II	2
	BIOL 205. Basic Human Anatomy	4	PHIS 206. Human Physiology	3
	STAT 210. Basic Practice of Statistics	3	PHIZ 206. Human Physiology Lab	1
	UNIV 200. Inquiry and the Craft of Argument	3	ECON 203. Introduction to Economics	3
	PSCI 201. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development I	1	PSCI 202. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development II	1
	Total	**16**	**Total**	**13**
Junior	CHEM 403. Biochemistry I	3	BIOL 303. Microbiology	3
	BIOL 300. Cellular and Molecular Biology	3	PHYS 201. General Physics I	4
	BIOL 310. Genetics	3	PSCI 330. Molecules to Medicine II	3
	PSCI 320. Molecules to Medicine I	2	PSCI 370. Drug Dosage Form Development	3
	PSCI 350. Social and Behavioral Influences on Medication Use	2	SPCH 221. Oral Communication and Presentation	3
	Gen Ed – Racial Literacy	3		
	Total	**16**	**Total**	**16**

Senior	BIOL 455. Immunology	3	PSCI 450. Advances in Molecular and Cellular Therapy	2
	Humanities / Fine Arts	3	PSCI 415. Analytical Methods in the Pharmaceutical Sciences II	3
	PSCI 410. Analytical Methods in the Pharmaceutical Sciences I	2	PSCI 482. Capstone Experience in Pharmaceutical Sciences II	2
	PSCI 430. Principles of Drug Action	2	PSCI 494. Capstone Seminar in Pharmaceutical Sciences I II	1
	PSCI 420. Molecules to Medicine III	2	Elective	4
	PSCI 481. Capstone Experience in Pharmaceutical Sciences I	2		
	PSCI 493. Capstone Seminar in Pharmaceutical Sciences I	1		
	Total	**15**	**Total**	**12**

Total Credit Hours: 120 credits

Sample Plan of Study for Part-Time Students

Year	Fall Semester	Credits	Spring Semester	Credits
Year 1	CHEM 101. General Chemistry I	3	CHEM 102. General Chemistry II	3
	CHEZ 101. General Chemistry Lab I	1	CHEZ 102. General Chemistry Lab II	1
	BIOL 151. General Biology I	3	BIOL 152. General Biology II	3
	BIOZ 151. General Biology I Lab	1	BIOZ 152. General Biology II Lab	1
	MATH 151. Pre-calculus Mathematics	4	MATH 200. Calculus with Analytic Geometry I	4
	UNIV 111. Focus Inquiry I	3	UNIV 112. Focus Inquiry II	3
	PSCI 101. Career Exploration in Pharmacy and Pharmaceutical Sciences I	1	PSCI 102. Career Exploration in Pharmacy and Pharmaceutical Sciences II	1
	Total	**16**	**Total**	**16**
Year 2	CHEM 301. Organic Chemistry I	3	CHEM 302. Organic Chemistry II	3
	CHEZ 302. Organic Chemistry II Lab	2	CHEZ 302. Organic Chemistry Lab II	2
	BIOL 205. Basic Human Anatomy	4	PHIS 206. Human Physiology	3
	STAT 210. Basic Practice of Statistics	3	PHIZ 206. Human Physiology Lab	1
	UNIV 200. Inquiry and the Craft of Argument	3	ECON 203. Introduction to Economics	3
	PSCI 201. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development I	1	PSCI 202. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development II	1
	Total	**16**	**Total**	**13**
Year 3	CHEM 403. Biochemistry I	3	BIOL 303. Microbiology	3
	BIOL 300. Cellular and Molecular Biology	3	PHYS 201. General Physics I	4
	BIOL 310. Genetics	3	PSCI 330. Molecules to Medicine II	3
	PSCI 320. Molecules to Medicine I	2	PSCI 370. Drug Dosage Form Development	3
	PSCI 350. Social and Behavioral Influences on Medication Use	2	SPCH 221. Oral Communication and Presentation	3
	Gen Ed – Racial Literacy	3		
	Total	**16**	**Total**	**16**

Year 4	BIOL 455. Immunology	3	PSCI 450. Advances in Molecular and Cellular Therapy	2
	Humanities / Fine Arts	3	PSCI 415. Analytical Methods in the Pharmaceutical Sciences II	3
	PSCI 410. Analytical Methods in the Pharmaceutical Sciences I	2	PSCI 482. Capstone Experience in Pharmaceutical Sciences II	2
	PSCI 430. Principles of Drug Action	2		
	Total	**10**	**Total**	**7**
Year 5	PSCI 420. Molecules to Medicine III	**2**	PSCI 494. Capstone Seminar in Pharmaceutical Sciences I II	1
	PSCI 481. Capstone Experience in Pharmaceutical Sciences I	**2**	Elective	4
	PSCI 493. Capstone Seminar in Pharmaceutical Sciences I	**1**		
	Total	**5**	**Total**	**5**

Total Credit Hours: 120 credits

Appendix B – Course Descriptions

Core Courses
All courses are new.

PSCI 101. Career Exploration in Pharmacy and Pharmaceutical Sciences I. 1 Hour. Semester course; 1 lecture hour. 1 credit. This course will expose students to a selection of the many different career options within pharmaceutical sciences, illustrate the roles played by pharmaceutical scientists and pharmacists in health care, prepare students to take appropriate electives and participate in extra- and co-curricular activities to achieve their goals. The sessions will include formal didactic lectures, presentations by practicing pharmaceutical scientists and pharmacists, and faculty led discussions.

PSCI 102. Career Exploration in Pharmacy and Pharmaceutical Sciences II. 1 Hour. Semester course; 1 lecture hour. 1 credit. Prerequisite: PSCI 101. This course will explore additional career options within pharmaceutical sciences with an emphasis on scientific and health care ethics, including research conduct and reporting, patient diversity, animal testing and product marketing. The sessions will include formal didactic lectures, presentations by practicing pharmaceutical scientists and pharmacists, and faculty led discussions.

PSCI 201. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development I. 1 Hour. Semester course; 1 lecture hour. 1 credit. This course will introduce students to the pharmaceutical sciences, including the following topics: analysis and pharmaceutical quality, biotechnology, clinical pharmacology and translational research, drug discovery and development interface, formulation design and development, manufacturing science and engineering, pharmacokinetics, pharmacodynamics and drug metabolism, physical pharmacy and biopharmaceutics, and regulatory sciences. The emphasis of this course will be basic understanding of the stages of the drug development 'pipeline' and the contributions of the various disciplines of the pharmaceutical sciences with a focus on traditional or standard approaches to meeting patient's needs.

PSCI 202. Introduction to the Pharmaceutical Sciences and Pharmaceutical Product Development II. 1 Hour. Semester course; 1 lecture hour. 1 credit. Prerequisite: PSCI 201. This course will introduce students to the pharmaceutical sciences, including the following topics: analysis and pharmaceutical quality, biotechnology, clinical pharmacology and translational research, drug discovery and development interface, formulation design and development, manufacturing science and engineering, pharmacokinetics, pharmacodynamics and drug metabolism, physical pharmacy and biopharmaceutics, and regulatory sciences. The emphasis of this course will be on situations requiring more complicated or innovative approaches to therapeutic treatment, such as epilepsy, cancer and lung disease.

PSCI 320. Molecules to Medicine I. 2 Hours. Semester course; 2 lecture hours; 2 credits. Prerequisite: PSCI 202. Molecules to Medicines is a three-course series designed to build on the principles from Introduction to Pharmaceutical Sciences I&II to build a deeper understanding of the multidisciplinary process of drug development. This first course will explore concepts such

as design/discovery of a chemical/biological agent, lead development and optimization, homology and pharmacophore modeling, bulk preparation, and biochemical/biophysical characterization.

PSCI 330. Molecules to Medicine II. 3 Hours. Semester course; 3 lecture hours; 3 credits. Prerequisite: PSCI 320. Molecules to Medicines is a three-course series designed to build on the principles from Introduction to Pharmaceutical Sciences I&II to build a deeper understanding of the multidisciplinary process of drug development. This second course will transition from early discovery to pre-clinical evaluation including early formulation, metabolic profiling, and toxicity, ADME and pharmacokinetic studies in animals to support progression to first in human studies.

PSCI 350. Social and Behavioral Influences on Medication Use. 2 Hours. Semester course; 2 lecture hours; 2 credits. This course introduces students to societal and personal influences on the health and illness of individuals and populations. Students learn models of medication use, preventive health, illness behaviors, socioeconomics, and behavioral change to pharmaceuticals.

PSCI 370. Drug Dosage Form Development. 3 hours. Semester course; 3 lecture hours; 3 credits. This course will introduce students to the basic principles and foundations of drug delivery, including solubility, kinetic processes, bioavailability, and excipient activities. The principles will be applied to traditional liquid (solutions, suspensions, and emulsions) and solid (tablets and capsules) oral dosage forms. Situations requiring innovative approaches to therapeutic treatment, such as epilepsy, cancer, and lung disease, or drugs with low oral bioavailability will be included. Oral and non-oral drug delivery approaches and bioavailability enhancing formulations will be explored. Issues and concepts involved in parenteral and injectable formulations will be presented.

PSCI 410. Analytical Methods in the Pharmaceutical Sciences I. 2 Hours. Semester course; 2 lecture hours. 2 credits. This course will explore pharmaceutical and bioanalytical concepts. It is designed to introduce topics associated with pharmaceutical analysis including method development, validation (i.e., regulatory), instrumentation (i.e., mass spectrometry), and sample preparation. In addition, students will be introduced to the United States Pharmacopeia processes in a dosage form and active pharmaceutical ingredient monograph.

PSCI 415. Analytical Methods in the Pharmaceutical Sciences II. 3 Hours. Semester course; 3 lecture hours. 3 credits. Prerequisite: PSCI 410. This course will present the principles of pharmacotherapy, health outcomes, and health policy with a focus on pharmaceutical and healthcare literature. Emphasis is on analysis of drug therapy success (including quality of life, disease measures, pharmacoepidemiology, pharmacoeconomics) and pharmaceutical health services research.

PSCI 420. Molecules to Medicine III. 2 Hours. Semester course; 2 lecture hours; 2 credits. Prerequisite: PSCI 330. Molecules to Medicines is a three-course series designed to build on the principles from Introduction to Pharmaceutical Sciences I&II to build a deeper understanding of the multidisciplinary process of drug development. This third course will explore moving from the pre-clinical space to first-in-human studies including clinical trial phases and their purpose,

dosing regimen, pharmacokinetic profiling, therapeutic safety and efficacy, and the drug regulatory approval process (FDA).

PSCI 430. Principles of Drug Action. 2 hours. Semester course; 2 lecture hours. 2 credits**.** This course will use principles of organic chemistry, biochemistry, medicinal chemistry, anatomy, physiology, pathophysiology, and pharmacology to build an understanding of drug mechanisms of action used to treat selected diseases. Drugs used to treat autonomic/endocrine, cardiovascular/renal, CNS, and chemotherapy/infectious diseases will be surveyed.

PSCI 450. Advances in Molecular and Cellular Therapy. 2 Hours. Semester course; 2 lecture hours. 2 credits. This course will explore the most recent advances in molecular and cellular therapies and how they are used to design new treatments to human diseases. Topics will include discovery, development, and manufacturing of molecular and cellular therapies, clinical trials and application of these therapies to disease states, as well as ethical perspectives and regulatory requirements. In addition to didactic lectures the course will include in-class or in-lab demonstrations on topics such as generating therapeutic recombinant human proteins, humanized monoclonal antibodies, gene editing using CRISPR/Cas 9.

PSCI 481. Capstone Experience in Pharmaceutical Sciences I. 2 hours. Semester course; mentored experiential. 2 credits. Corequisite: PSCI 493. This course will provide opportunities and facilitation for students to participate in mentored experiential learning in pharmacy and pharmaceutical sciences. Examples of experiences offered include: research (laboratory-based, non-laboratory such as clinical/pharmacy practice, or in outcomes science), community service projects, and internships in industrial settings or government/regulatory agencies. This course will be VCU REAL Level 2 (a clearly defined experiential learning activity incorporating either guided reflection or mentoring). Capstone experiences (PSCI 481 and PSCI 482) require a total of 4 credits and a minimum of 180 experiential hours for graduation. Grades for PSCI 481 will be assigned at the completion of the PSCI 481+482 sequence.

PSCI 482. Capstone Experience in Pharmaceutical Sciences II. 2 Hours. Semester course; mentored experiential. 2 credits. Corequisite: PSCI 494. Prerequisite: PSCI 481. This course will continue student participation in mentored experiential learning in pharmacy and pharmaceutical sciences. See PSCI 481 for examples of relevant experiences. This course will be VCU REAL Level 4 (a clearly defined experiential learning activity that incorporates reflection, mentoring, and integrative learning as both a pedagogy and a learning outcome). Capstone experiences (PSCI 481 and PSCI 482) require a total of 4 credits and a minimum of 180 experiential hours for graduation.

PSCI 493. Capstone Seminar in Pharmaceutical Sciences I. 1 hour. Semester course; 1 Hour. 1 credit. Corequisite: PSCI 481. This course runs in conjunction with mentored experiential learning as a forum to communicate professionalism, scientific and related strategies to gain the most from the experience. Oral presentation skills (talks and posters) will be emphasized, developed and practiced. In addition, using scientific forums for professional networking will be discussed and practiced.

PSCI 494. Capstone Seminar in Pharmaceutical Sciences II. 1 hour. Semester course; 1 Hour. 1 credit. Corequisite: PSCI 482. This course runs in conjunction with mentored experiential learning as a forum to share student experiences. Oral presentation skills will be demonstrated by students in the form of formal seminars. Seminar presenters will also include pharmaceutical scientists and pharmacist guest lecturers.

Appendix C – Faculty Curriculum Vitae (abbreviated)

Yana Cen, PhD in Organic Chemistry, 2006, Michigan State University, Assistant Professor of Medicinal Chemistry. Specialization Areas: Organic Chemistry, Biochemistry.

Umesh R Desai, PhD in Chemistry, 1991, Indian Institute of Technology - Bombay, India. Specialization Areas: Pharmaceutical Sciences, Drug Design and Discovery, Biomolecules, Protein-Drug Binding, High-Throughput Screening.

Malgorzata Dukat, PhD in Medicinal Chemistry, 1989, Nicolaus Copernicus Academy of Medicine, Jagiellonian University, Krakow, Poland, Associate Professor of Medicinal Chemistry. Specialization Areas: Medicinal Chemistry, Rational and Computational Drug Design, Small Molecule-Protein Interactions.

Phillip M. Gerk, PharmD, 1993, University of Illinois at Chicago; PhD in Clinical Pharmaceutical Science, 2000, University of Kentucky, Professor of Pharmaceutics. Specialization Areas: Pharmacokinetics, Drug Disposition, Bioavailability.

Matthew S Halquist, PhD in Pharmaceutical Sciences, 2012, Virginia Commonwealth University School of Pharmacy, Associate Professor in Pharmaceutics. Specialization Areas: Pharmaceutical Analysis, Bioanalysis, FDA Regulations, Biomarkers of Exposure.

David Holdford, BSPharm, University of Illinois Medical Center, PhD in Pharmacy Administration, Ohio State University, Professor in the Department of Pharmacotherapy and Outcomes Science. Specialization Areas: Pharmacoeconomics and Health Outcomes, Business of Pharmaceuticals and Pharmacist Services.

Glen E. Kellogg, PhD in Chemistry, 1985, University of Arizona, Professor of Medicinal Chemistry. Specialization Areas: Computational Chemistry, Drug Discovery, Structural Biology.

Aaron E. May, PhD in Organic Chemistry, 2010, University of Minnesota – Twin Cities, Assistant Professor of Medicinal Chemistry. Specialization Areas: Synthetic Organic Chemistry, Natural Product Biosynthesis, High Throughput Screening, Drug Resistance, Antimicrobials, Antifungals.

Elvin T. Price, PharmD, 2004, Florida A&M University; PhD in Clinical Pharmaceutical Sciences, 2009, University of Florida, Associate Professor of Pharmacotherapy and Outcomes Science. Specialization Areas: Pharmacogenomics, Clinical Pharmacology.

Martin Safo, PhD in Chemistry, 1991, University of Notre Dame, Professor of Medicinal Chemistry. Specialization Areas: Protein Structure-Function Studies, Drug Discovery, Structural Biology.

Douglas H. Sweet, PhD in Biology, 1993, University of Michigan, Professor of Pharmaceutical Sciences. Specialization Areas: Drug Transporters, Biopharmaceutics.

Yan Zhang, PhD in Organic Chemistry and Medicinal Chemistry, 1997, Peking Union Medical College, Beijing, China. Professor of Medicinal Chemistry. Specialization Areas: Medicinal Chemistry, Organic Chemistry, Drug Discovery and Development.

Shijun Zhang, PhD in Pharmaceutical Sciences, 2004, Wayne State University. Professor of Medicinal Chemistry. Specialization Areas: Medicinal Chemistry, Organic Chemistry, Drug discovery, Drug-Protein Binding.

Dayanjan S. Wijesinghe, PhD in Biochemistry and Molecular Biology, 2008, Virginia Commonwealth University School of Medicine, Associate Professor in Pharmacotherapy and Outcomes Sciences. Specialization Areas: Personalized Medicine, Digital Health, Lipidomics, Metabolomics.

Appendix D – Institutions with a BS in Pharmaceutical Sciences Program

Hampton University	VA	https://home.hamptonu.edu/pharmacy/
Campbell University	NC	https://www.campbell.edu/
CUNY York College	NY	https://www.york.cuny.edu/?
D'Youville College	NY	http://www.dyc.edu/
University of the Sciences in Philadelphia	PA	https://www.usciences.edu/
*The University of Arizona	AZ	https://www.arizona.edu/
American University of Health Sciences	CA	https://www.auhs.edu/
Florida A&M University	FL	https://www.famu.edu/
University of Georgia	GA	https://www.uga.edu/
Massachusetts College of Pharmacy and Health Sciences	MA	https://www.mcphs.edu/
Northeastern University	MA	https://www.northeastern.edu/
University of Michigan	MI	https://umich.edu/
University of Health Sciences & Pharmacy in St. Louis	MO	https://www.uhsp.edu/
The University of Mississippi	MS	https://olemiss.edu/
Elizabeth City State University	NC	http://www.ecsu.edu/
North Carolina Central University	NC	www.ncu.edu
The University of New Mexico	NM	https://www.unm.edu/
Albany College of Pharmacy and Health Sciences	NY	https://www.acphs.edu/
Long Island University	NY	https://liu.edu/brooklyn
*University at Buffalo, SUNY	NY	http://www.buffalo.edu/
Cedarville University	OH	https://www.cedarville.edu/
*The Ohio State University	OH	https://www.osu.edu/
The University of Toledo	OH	https://www.utoledo.edu/
The University of Rhode Island	RI	https://www.uri.edu/
South Dakota State University	SD	https://www.sdstate.edu/
Concordia University Wisconsin	WI	https://www.cuw.edu/
Belmont University	TN	http://www.belmont.edu/index.html
*University of Southern California	CA	https://www.usc.edu/

*SCHEV Peer Institution

Appendix E – Employment Demand

SCIENTIST / SR SCIENTIST - VACCINES - AUTOMATION

Richmond VA Dabney Rd - Richmond - VA

JOB DESCRIPTION

Title: Scientist / Sr Scientist - Automation

Department: Vaccine Sciences

Location: Richmond, Virginia

This is an immediate opening with full benefits and relocation assistance available!

PPD clinical research services, is a leading global contract research organization providing comprehensive, integrated drug development, laboratory and lifecycle management services. At PPD, we are passionate, deliberate, and driven by our purpose- to improve health!

Envision a workplace where you have a direct impact on improving health, work alongside expert scientists, use newest technologies and collaborate with industry thought leaders and therapeutic experts. Welcome to PPD® Laboratories, where science is our passion, quality is our commitment and people are the cornerstone of our success.

As a Scientist or Sr Scientist- Automation, you will perform a variety of complex sample preparation and analysis procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and/or biological matrices.

At PPD clinical research services, we hire the best, develop ourselves and each other, and recognize the power of being one team. We offer continued career advancement opportunities, award winning training and benefits focused on the health and well being of our employees.

Summarized Purpose:

Possesses a thorough understanding of laboratory procedures and can reliably conduct complex analysis with increased independence. Performs a variety of complex sample preparation and analysis procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and/or biological matrices. Follows validated or experimental analytical procedures with periodic direct supervision. Responsible for review and compilation of results and data comparison against SOP acceptance criteria, methodology, protocol and product specifications. Enters data into databases and reports. Performs self-review for own data prior to QC submission.

Essential Functions:

- Performs a variety of complex sample preparation and analysis procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and /or biological matrices for stability and analytical testing.
- Works with multiple functional groups to meet business needs.
- Plans and organizes work with periodic supervision.
- Sets up and maintains analytical instrumentation.
- Trains on routine operation, maintenance and theory of analytical instrumentation, SOPs and regulatory procedures and guidelines.
- Ensures QA findings are addressed appropriately.
- Aids and training to other team members.
- Problem solving, either independently or with assistance pertaining to extraction and/or instrumentation problems.
- Communicates project status to project leader.
- Performs work assignments accurately, and in a timely and safe

manner.

- Reviews, interprets, and analyzes data for technical, quality and compliance to protocols, methods, SOPs, client criteria and Good Manufacturing Practices (GMP) or Good Laboratory Practices (GLP).
- Performs self and peer review of the data for accuracy and compliance with reporting requirements prior to submission to QA and issuance to customers.

#GD
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Associate Scientist, US Pain

19 days old

GSK

Richmond, VA 23219

Site Name: Richmond-Sherwood Posted Date: Jan 14 2022 The GSK Consumer Healthcare R&D team sup
Health care. As part of the development team the Associate Scientist has various levels of involvement in th
semi-solid, liquid, and other formulations . As an Associate Scientist, US Pain you will support new product
analysis and evaluation of material and products at all stages of the development process, considering scie
Excedrin, and Voltaren. This role will provide YOU the opportunity to lead key activities to progress YOUR c
Contributes to one or more projects in support of Brand Innovation strategies. Carries out experiments and
team members. Ensures all work is conducted in accordance with written procedures (e.g. quality and safet
procedures (e.g. quality and safety), methods & batch documents, etc. Produces or executes to, departmer
documentation, validation protocols & reports). Operates according to EHS Health, Wellness, and Safety st
Completes all training needs and working with manager develop a training plan and achieve training goals.
responsibilities (including coaching, mentoring and elements of personal development). Maintains precise e
writes invention records to protect scientific discoveries. Ensures all work is always conducted following goo
you? Basic Qualifications: We are looking for professionals with these required skills to achieve our goals: E
science Preferred Qualifications: If you have the following characteristics, it would be a plus: Ability to apply
Knowledge of R&D development processes Demonstrates ability to listen to instructions, take initiative, thin
teams, and prioritize workload An ability to organize and report study data from internal and external source
written form with both internal departments and external organizations Why Consumer Healthcare? Right n
the first independent, 100% focused consumer healthcare company. Were doing this at a time when the wo
about improving the health and wellness of the consumers that we touch every year over a billion and a hal
people manage their health proactively in different ways as consumer needs evolve. With category leading
trusted science and human understanding, and combined with our passion, knowledge and expertise, were
business. This is an exciting time to join us and help shape the future. Its an opportunity to be part of somet
Healthcare we embrace our diverse workforce by creating an inclusive environment that celebrates our unic
under If you require an accommodation or other assistance to apply for a job at GSK, please contact the GS
567 5155 (outside US). GSK is an Equal Opportunity Employer and, in the US, we adhere to Affirmative Ac
receive equal consideration for employment without regard to race, color, national origin, religion, sex, preg
identity/expression, age, disability, genetic information, military service, covered/protected veteran status or
health and safety of our employees are of paramount importance. As a science-led healthcare company on
supporting vaccination against COVID-19 is the single best thing we can do in the US to ensure the health a
workplaces, customers, consumers, communities, and the patients we serve. GSK has made the decision t
COVID-19, where allowed by state or local law and where vaccine supply is readily available. The only exce
for an accommodation for religious, medical or disability-related reasons. Important notice to Employment b
employment businesses and/or employment agencies in respect of the vacancies posted on this site. All en
commercial and general procurement/human resources department to obtain prior written authorization bef
written authorization is a condition precedent to any agreement (verbal or written) between the employment
authorization being obtained any actions undertaken by the employment business/agency shall be deemed

Associate Scientist, US Pain

GSK

Richmond, VA 23219

agreement of GSK. GSK shall therefore not be liable for any fees arising from such actions or any fees arisi
respect of the vacancies posted on this site. Please note that if you are a US Licensed Healthcare Professio
state issuing your license, GSK may be required to capture and report expenses GSK incurs, on your behal
This capture of applicable transfers of value is necessary to ensure GSKs compliance to all federal and stat
please visit GSKs Transparency Reporting For the Record site.","street_address":"1211 Sherwood Avenue"

Categories

SCIENTIST -QC REVIEWER

This posting is no longer accepting new applications.

JOB DESCRIPTION

Title: Associate Scientist - QC Reviewer

Department: Vaccine Sciences

Location: Richmond, VA - office based

*This is an immediate opening with full benefits and relocation assistance!

PPD's mission is to improve health. It starts as an idea to find a cure. It becomes a life saved. All in-between, it's you! We know that meaningful results not only require the right approach, but also the right people. We invite you to re-imagine health promoting protocols with us, working alongside our talented, bright and energetic teams.

Envision a workplace where you have a direct impact on improving health, work alongside expert scientists, use newest technologies and collaborate with industry thought leaders and therapeutic experts. Welcome to PPD® Laboratories, where science is our passion, quality is our commitment and people are the cornerstone of our success.

As an Associate Scientist - Data Review, you will use state-of-the-art technologies to perform high-quality sample testing for key pharmaceutical clients across the industry.

At PPD we hire the best, develop ourselves and each other, and recognize the power of being one team. We offer continued career advancement opportunities, award winning training and benefits focused on the health and well being of our employees.

Summarized Purpose:

Possesses an understanding of laboratory procedures and under general supervision can conduct complex analysis. Performs a variety of routine sample preparation and analysis procedures to

quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and/or biological matrices for stability and analytical testing.Trains on routine operation, maintenance and theory of analytical instrumentation, SOPs and regulatory guidelines. Responsible for review and compilation of results and data comparison against SOP acceptance criteria, methodology, protocol and product specifications.

Essential Functions:

- Performs a variety of routine sample preparation and analysis procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and/or biological matrices for stability and analytical testing.
- Trains on routine operation, maintenance and theory of analytical instrumentation, SOPs and regulatory guidelines.
- Communicates project status to project leader.
- Maintains a laboratory notebook and completes all laboratory documentation in clear and accurate language and according to SOP and GLPs.
- Performs daily work assignments accurately, and in a timely and safe manner.

- Reviews, interprets, and analyzes data for technical, quality and compliance to protocols, methods, SOPs, client criteria and Good Manufacturing Practices (GMP) or Good Laboratory Practices (GLP).
- Performs self and peer review of the data for accuracy and compliance with reporting requirements prior to submission to QA and issuance to customers.

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PPDJobs

Job Qualification

Education and Experience:

- Bachelor's degree or equivalent and relevant formal academic / vocational qualification
- Previous experience that provides the knowledge, skills, and abilities to perform the job (comparable to 1+ years for Associate Scientist).
- For Scientist level, previous experience that provides the knowledge, skills, and abilities to perform the job (comparable to 2+ years).

In some cases, an equivalency, consisting of a combination of appropriate education, training and/or directly related experience, will be considered enough for an individual to meet the requirements of the role.

Knowledge, Skills, and Abilities:

- Knowledge of routine operation, maintenance and theory of analytical instrumentation, SOPs and regulatory guideline
- Proven experience reviewing and analyzing lab data
- Knowledge of applicable regulatory authority, compendia and ICH guidelines
- Excellent manual dexterity skills
- Good written and oral communication skills
- Time management and project management skills
- Proven problem solving and troubleshooting abilities
- Ability to cross-train on sample preparation techniques with another laboratory group
- Ability to work in a collaborative work environment with a team

Working Environment:

PPD values the health and well being of our employees. We support and encourage individuals to create a healthy and balanced environment where they can thrive.Below is listed the working environment/requirements for this role:

- Able to communicate, receive, and understand information and ideas with diverse groups of people in a comprehensible and reasonable manner.
- Able to work upright and stationary and/or standing for typical working hours.
- Able to lift and move objects up to 25 pounds.
- Able to work in non-traditional work environments.
- Able to use and learn standard office equipment and technology with proficiency.
- May have exposure to potentially hazardous elements, including infectious agents, typically found in healthcare or laboratory environments.
- Able to perform successfully under pressure while prioritizing and handling multiple projects or activities.
- As a condition of employment with PPD, in this role, you must have received your Covid-19 vaccine and you must disclose proof of your vaccination status upon employment.

PPD Defining Principles:

We have a strong will to win - We earn our customer's trust - We are game changers - We do the right thing - We are one PPD -

If you resonate with our five principles above, and ultimately wish to accelerate the delivery of safe and effective therapeutics for some of the world's most urgent health needs, then please submit your application – we'd love to hear from you.

Diversity Statement

PPD is proud to be an affirmative action employer that values diversity as a strength and fosters an environment of mutual respect. PPD is committed to providing equal employment opportunities without regard to age, race, color, pregnancy, national origin, religion, sex, gender identity, sexual orientation, disability, veteran status or status within any other protected group.

Scientist - Immunochemistry in Richmond, Virginia

Title: Scientist

Division / Dept.: Immunochemistry

Location: Richmond, VA (Office Based)

Note: Full time, Benefits, Relocation Assistance Available

PPD is a leading global contract research organization providing comprehensive, integrated drug development, laboratory and lifecycle management services. At PPD, we are passionate, deliberate, and driven by our purpose- to improve health!

Envision a workplace where you have a direct impact on improving health, work alongside expert scientists, use newest technologies and collaborate with industry thought leaders and therapeutic experts. Welcome to PPD® Laboratories, where science is our passion, quality is our commitment and people are the cornerstone of our success.

At PPD we hire the best, develop ourselves and each other, and recognize the power of being one team. We offer continued career advancement opportunities, award winning training and benefits focused on the health and wellbeing of our employees.

Essential Functions:

- Performs a variety of complex sample preparation and analysis procedures
- Works with multiple functional groups to meet business needs
- Plans and organizes work with periodic supervision
- Sets up and maintains analytical instrumentation
- Trains on routine operation, maintenance and theory of analytical instrumentation, SOPs, and regulatory procedures and guidelines
- Ensures QA findings are addressed appropriately
- Communicates project status to project leaders

- Provides assistance and training to other team members
- Performs work assignments accurately, and in a timely and safe manner
- Reviews, interprets, and analyzes data for technical, quality and compliance to protocols, methods, SOPs, client criteria and Good Manufacturing Practices (GMP) or Good Laboratory Practices (GLP)

To learn how PPD can advance your career, apply now!

Video links:

*Richmond BioA Labs Overview: *

https://www.ppd.com/our-solutions/ppd-laboratories/bioanalytical-lab/

*PPD LinkedIn Video Landing Page: *

https://www.linkedin.com/showcase/ppd-laboratories/?feedView=videos

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Education and Experience:

- Bachelor's degree or equivalent and relevant formal academic / vocational qualification
- Previous experience that provides the knowledge, skills, and abilities to perform the job(comparable to 2 years')or equivalent combination of education, training, & experience.
- ORMastersdegree

Knowledge, Skills and Abilities:

- BioPharmaceutical Testing (ELISA, ECL, MSD, ADA, LBA)
- Manual dexterity.
- Communicate effectively and follow detailed written and verbal instruction.

- Cooperate with coworkers within an organized team environment or work alone with supervision.
- Manage time effectively to complete assignments in expected time frame.
- Maintain a laboratory notebook and complete all documentation with clear and accurate language and according to the SOP.
- Proficient in the use of analytical instrumentation, skills in separation science techniques are desired.
  Proficient in sample extraction procedures.
- Ability to plan, schedule and carry out work for successful project completion.
- Proficient in the operation of the computer and data acquisition programs.
- Positive attitude and ability to work well with others.
- Ability to write protocols and reports with minimum supervision

PPD Benefits Overview:

PPD offers comprehensive benefits including medical, dental, vision, pharmacy, employee assistance program, wellness program options and more.

Other benefits include:

- 401k with matching contributions, life insurance, long term and short term disability insurance, flexible medical and dependent care spending accounts.
- Work life balance programs including paid time off for vacation/sick time, paid holidays, floating holiday and vacation sell back program.
- Wellness benefits including health and wellness programs, fitness facility access or discount, health coaching and more.
- Education reimbursement and tuition assistance programs, professional development training, skills training, education loan repayment plan, dependent scholarship program and more.

- Employee appreciation events, service recognition awards, annual reviews, merit plans and bonus plans
- Community connections and activities including philanthropic engagement, volunteer service projects and more
- Other great options including pet insurance, legal and financial services plan, auto and home insurance discounts.

Below Is Listed The Working Environment/requirements For This Role

/As a condition of employment with PPD, in this role, you must have received your Covid-19 vaccine and you must disclose proof of your vaccination status upon employment/

/PPD values the health and wellbeing of our employees. We support and encourage individuals to create a healthy and balanced environment where they can thrive./

- /Able to communicate, receive, and understand information and ideas with diverse groups of people in a comprehensible and reasonable manner/
- /Able to work upright and stationary and/or standing for typical working hours/
- /Able to lift and move objects up to 25 pounds/
- /Able to work in non-traditional work environments/
- /Able to use and learn standard office equipment and technology with proficiency/
- /May have exposure to potentially hazardous elements, including infectious agents, typically found in healthcare or laboratory environments/
- /Able to perform successfully under pressure while prioritizing and handling multiple projects or activities/

Job: *Labs

Organization: *US BU

Title: Scientist - Immunochemistry

Location: VA-Richmond-Richmond VA Dabney Rd

Requisition ID: 207597

PPD is an affirmative action employer that values diversity as a strength fosters and environment of mutual respect. PPD provides equal employment opportunities without regard to age, race, color, pregnancy, national origin, religion, sex, gender identity, sexual orientation, disability, veteran status or other status within any other protected group

Cell Culture Scientist – Reduced Harm Product Development

Richmond, VA, USA
Full-time

Company Description

Eurofins Scientific is an international life sciences company, providing a unique range of analytical testing services to clients across multiple industries, to make life and our environment safer, healthier and more sustainable. From the food you eat, to the water you drink, to the medicines you rely on, Eurofins works with the biggest companies in the world to ensure the products they supply are safe, their ingredients are authentic and labelling is accurate. Eurofins believes it is a global leader in food, environmental, pharmaceutical and cosmetics products testing and in agroscience CRO services. It is also one of the global independent market leaders in certain testing and laboratory services for genomics, discovery pharmacology, forensics, CDMO, advanced material sciences and in the support of clinical studies.

In over just 30 years, Eurofins has grown from one laboratory in Nantes, France to over 47,000 staff across a network of more than 900 independent companies in over 50 countries and operating more than 800 laboratories. Eurofins offers a portfolio of over 200,000 analytical methods to evaluate the safety, identity, composition, authenticity, origin, traceability and purity of biological substances and products, as well as providing innovative clinical diagnostic testing services, as one of the leading global emerging players in specialised clinical diagnostics testing.

In 2019, Eurofins generated total revenues of EUR € 4.56 billion, and has been among the best performing stocks in Europe over the past 20 years.

Job Description

- Work as part of a larger team of scientists in the Reduced Risk Product Development team. Operate and carry out routine maintenance, and troubleshooting of Sensory Physiology lab equipment such as tissue culture incubators, water baths, and automation.
- Follow written procedures, SOPs, and laboratory practices to prepare samples for sensory screening
- Culture, expand, and maintain stable mammalian cell lines
- Run calcium imaging based molecular assays, using FlexStation 3 and FLIPR systems
- Accurately record experimental details and data using the appropriate software
- Analyze data in timely manner and generate summary tables and plots for presentation/reporting purpose, position helps not only in data processing but also contributes to the design and optimization of methods and workflows, tracking of sample and project progress and communicating with group members
- Characterize sensory properties of neat compounds or plant extracts, as well as characterize their sensitization and desensitization properties at the receptor level
- Perform competition assays to investigate compound interactions at the receptor level
- Perform daily laboratory duties to include sample preparation, performing analysis, calculating data, recording/reporting data, performing general housekeeping in alignment with 5S standards, and performing other duties as assigned.
- Meet all quality and productivity metrics

- Perform instrument calibration, maintenance, troubleshooting, recognize errors, identify root causes, and maintain excellent working knowledge of laboratory instrumentation.
- Demonstrate strong client service skills
- Proactively plan and maximize productivity
- Demonstrate strong teamwork and collaboration
- Implement operational improvements
- Support and promote company policies and procedures

Qualifications

- Bachelor's degree in STEM or related discipline, or equivalent directly-related experience
- Research and hands-on laboratory experience culturing cells, operating laboratory equipment, and using aseptic technique.
- Experience running fluorescence assays is a plus.
- Industry experience is preferred.
- Strong desire to contribute to the collective success of the team; motivation to take ownership of projects.
- Ability to understand overarching project goals and objectives.
- Detailed-oriented with strong analytical and organizational skills.
- Strong leadership, initiative, and teambuilding skills
- Ability to learn new techniques, perform multiple tasks simultaneously, keep accurate records, follow instructions, and comply with company policies
- Strong written, verbal and presentation skills along with demonstrated ability to collaborate with others.
- Strong computer, scientific, and organizational skills
- Ability to work independently and as part of a team, self-motivation, adaptability, and a positive attitude
- Authorization to work in the United States indefinitely without restriction or sponsorship

Additional Information

Position is full-time, Monday - Friday 8:00am - 5:00pm. Candidates currently living within a commutable distance of Richmond, VA are encouraged to apply.

- Excellent full time benefits including comprehensive medical coverage, dental, and vision options
- Life and disability insurance
- 401(k) with company match
- Paid vacation and holidays

Eurofins is a M/F, Disabled, and Veteran Equal Employment Opportunity and Affirmative Action employer.

Eurofins is a M/F, Disabled, and Veteran Equal Employment Opportunity and Affirmative Action employer.

eurofins | PSS Insourcing Solutions

Analytical Scientist - Gas Chromatography

Richmond, VA, USA
Full-time

Company Description

Eurofins Scientific is an international life sciences company, providing a unique range of analytical testing services to clients across multiple industries, to make life and our environment safer, healthier and more sustainable. From the food you eat, to the water you drink, to the medicines you rely on, Eurofins works with the biggest companies in the world to ensure the products they supply are safe, their ingredients are authentic and labelling is accurate. Eurofins believes it is a global leader in food, environmental, pharmaceutical and cosmetics products testing and in agroscience CRO services. It is also one of the global independent market leaders in certain testing and laboratory services for genomics, discovery pharmacology, forensics, CDMO, advanced material sciences and in the support of clinical studies.

In over just 30 years, Eurofins has grown from one laboratory in Nantes, France to over 47,000 staff across a network of more than 900 independent companies in over 50 countries and operating more than 800 laboratories. Eurofins offers a portfolio of over 200,000 analytical methods to evaluate the safety, identity, composition, authenticity, origin, traceability and purity of biological substances and products, as well as providing innovative clinical diagnostic testing services, as one of the leading global emerging players in specialised clinical diagnostics testing.

In 2019, Eurofins generated total revenues of EUR € 4.56 billion, and has been among the best performing stocks in Europe over the past 20 years.

Job Description

Eurofins Lancaster Laboratories PSS is searching for an Analytical Scientist in Richmond, VA. This request is for an experienced senior level analytical chemist to support expanded operations within Analytical Sciences. These positions mainly support the Gas chromatography (GC) testing of new product categories using complex methodology.

Analytical Scientist responsibilities include, but are not limited to the following:

- Demonstrates and promotes the company vision
- Regular attendance and punctuality
- Applies ISO regulation in all areas of responsibility, as appropriate
- Performs routine GC and GC/MS tasks that provide experience and familiarization with methods, practices, and programs. These include:
  - Preparation of samples using standard techniques

- Performing chemical analysis using standard techniques
- Calculating data
- Recording and reporting data and any unusual test occurrences to the supervisor
- Performing routine instrument maintenance
- Responsible for general housekeeping in his/her work area
- Conducts all activities in a safe and efficient manner
- Performs other duties as assigned

Qualifications

The ideal candidate would possess:

- Strong computer, scientific, and organizational skills
- Excellent communication (oral and written) and attention to detail
- A demonstrated fundamental passion for leadership
- Creative scientific thinking for quickly developing technical solutions
- Ability to work independently and as part of a team, self-motivation, adaptability, and a positive attitude

Basic Minimum Qualifications:

- BS in analytical chemistry with 1-2 years of relevant work experience. Additional relevant work experience will be considered in lieu of an advanced degree.
- Advanced GC experience is a plus
- Experience working within an established quality system (e.g. ISO 17025) is desired.
- Authorization to work in the United States indefinitely without restriction or sponsorship

Additional Information

Position is full-time, Monday - Friday 8:00am - 5:00pm. Candidates currently living within a commutable distance of Richmond, VA are encouraged to apply.

- Excellent full time benefits including comprehensive medical coverage, dental, and vision options
- Life and disability insurance
- 401(k) with company match
- Paid vacation and holidays

Eurofins is a M/F, Disabled, and Veteran Equal Employment Opportunity and Affirmative Action employer.

Scientist l

Lancaster, VA

Share

Email Job

Job Description

Company Description

Eurofins Scientific is an international life sciences company, providing a unique range of analytical testing services to clients across multiple industries, to make life and our environment safer, healthier and more sustainable. From the food you eat, to the water you drink, to the medicines you rely on, Eurofins works with the biggest companies in the world to ensure the products they supply are safe, their ingredients are authentic and labelling is accurate. Eurofins believes it is a global leader in food, environmental, pharmaceutical and cosmetics products testing and in agroscience CRO services. It is also one of the global independent market leaders in certain testing and laboratory services for genomics, discovery pharmacology, forensics, CDMO, advanced material sciences and in the support of clinical studies.

In over just 30 years, Eurofins has grown from one laboratory in Nantes, France to over 50,000 staff across a network of more than 900 independent companies in over 50 countries and operating more than 800 laboratories. Eurofins offers a portfolio of over 200,000 analytical methods to evaluate the safety, identity, composition, authenticity, origin, traceability and purity of biological substances and products, as well as providing innovative clinical diagnostic testing services, as one of the leading global emerging players in specialised clinical diagnostics testing.

In 2020, Eurofins generated total revenues of EUR , 5.4 billion, and has been among the best performing stocks in Europe over the past 20 years.

Job Description

- Perform a wide range of analyses (routine and non-routine) to support bio-pharmaceutical testing. Analyses are primarily, but not limited to, cell-based assays and ELISA's (kit-based and de novo) and molecular biology assays.Meet TAT for assigned testing/projects and work independently.
- Review and evaluate raw data for acceptability. Assist other technical staff in evaluation of raw data for acceptability.
- Contribute to the development and validation of methods used within the department. Be able to plan and organize work week and communicate schedule to management when required. Attend client facing meetings as needed.
- Document work as required for GMP compliance. Work with quality departments to ensure all documentation meets GMP requirements for each assay developed.
- Troubleshoot method and instrumentation problems; be proactive in solving technical problems.
- Train technical staff and perform internal data review as need arises.

Qualifications

The Ideal Candidate would possess:

- Experience with aseptic techniques, cell culture (suspension and adherent), cell-based potency assays, and ELISAs. Experience with molecular biology techniques (PCR/qPCR/Sanger Sequencing) is preferred, but not required.
- Strong computer, scientific, and organizational skills; previous experience with any LIMS.
- Excellent communication (oral and written) and attention to detail.
- Ability to work independently and as part of a team, self-motivation, adaptability, and a positive attitude.
- Ability to learn new techniques, perform multiple tasks simultaneously, keep accurate records, follow instructions, and comply with company policies.

Minimum Qualifications:

- Bachelor's degree
- 1-3 years of molecular biology lab experience
- Authorization to work in the United States indefinitely without restriction or sponsorship

Additional Information

Position is full-time, Monday - Friday 9:00am - 5:00pm. OR 12:00pm -

8:00pm Candidates currently living within a commutable distance of Lancaster, PA are encouraged to apply.

- Excellent full time benefits including comprehensive medical coverage, dental, and vision options
- Life and disability insurance
- 401(k) with company match
- Paid vacation and holidays

Eurofins is aM/F, Disabled, and Veteran Equal Employment Opportunity and Affirmative Action employer.

Associate Scientist/Scientist- PCR/Biomarker- 1st shift

PPD's mission is to improve health. It starts as an idea to find a cure. It becomes a life saved. All in-between, it's you! We know that meaningful results not only require the right approach, but also the right people. We invite you to re-imagine health promoting protocols with us, working alongside our talented, bright and energetic teams.

Envision a workplace where you have a direct impact on improving health, work alongside expert scientists, use newest technologies and collaborate with industry thought leaders and therapeutic experts. Welcome to PPD® Laboratories, where science is our passion, quality is our commitment and people are the cornerstone of our success.

As an Associate Scientist, you will use state-of-the-art technologies to perform high-quality sample testing for key pharmaceutical clients across the industry.

At PPD we hire the best, develop ourselves and each other, and recognize the power of being one team. We offer continued career advancement opportunities, award winning training and benefits focused on the health and well-being of our employees.

Summarized Purpose:
Performs a variety of routine to complex sample preparation and analysis procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and/or biological matrices. Follows validated or experimental analytical procedures with periodic direct supervision. Responsible for review and compilation of results and data comparison against SOP acceptance criteria, methodology, protocol and product specifications.

Essential Functions:
* Performs a variety of routine to complex sample preparation and analysis

procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and/or biological matrices for stability and analytical testing.
* Problem solves with assistance pertaining to extraction and/or instrumentation problems.
* Trains on routine operation, maintenance and theory of analytical instrumentation, SOPs and regulatory procedures and guidelines.
* Manages QC/QA responsibilities without supervisor or QA input.
* Communicates project status to project leader.
* Performs work assignments accurately, and in a timely and safe manner.
* Reviews, interprets, and analyzes data for technical, quality and compliance to protocols, methods, SOPs, client criteria and Good Manufacturing Practices (GMP) or Good Laboratory Practices (GLP).
* Performs self and peer review of the data for accuracy and compliance with reporting requirements prior to submission to QA and issuance to customers.

Education and Experience:
Bachelor's degree or equivalent and relevant formal academic / vocational qualification

Previous experience that provides the knowledge, skills, and abilities to perform the job (associate scientist- comparable to 1 year; scientist- comparable to 2 years) or equivalent combination of education, training, and experience

In some cases, an equivalency, consisting of a combination of appropriate education, training and/or directly related experience, will be considered sufficient for an individual to meet the requirements of the role.

Knowledge, Skills, and Abilities:

*
Knowledge of applicable regulatory authority, compendia and ICH guidelines

*
Ability to understand and independently apply GMPs and /or GLPs to everyday work about documentation and instrument use

*
Ability to utilize Microsoft Excel and Word to perform tasks

*
Ability to independently optimize analytical methods

*
Good written and oral communication skills

*
Time management and project management skills

*
Problem solving and troubleshooting abilities

*
Ability to work in a collaborative work environment with a team

Working Environment:
PPD values the health and well-being of our employees. We support and encourage individuals to create a healthy and balanced environment where they can thrive. Below is listed the working environment/requirements for this role:

Able to communicate, receive, and understand information and ideas with diverse groups of people in a comprehensible and reasonable manner.

Able to work upright and stationary and/or standing for typical working hours.

Able to lift and move objects up to 25 pounds.

Able to work in non-traditional work environments.

Able to use and learn standard office equipment and technology with proficiency.

May have exposure to potentially hazardous elements, including infectious agents, typically found in healthcare or laboratory environments.

Able to perform successfully under pressure while prioritizing and handling multiple projects or activities.

/As a condition of employment with PPD, in this role, you must have received your

Covid-19 vaccine and you must disclose proof of your vaccination status upon employment./

PPD Defining Principles:
We have a strong will to win - We earn our customer's trust - We are gamechangers - We do the right thing - We are one PPD -

If you resonate with our five principles above, and ultimately wish to accelerate the delivery of safe and effective therapeutics for some of the world's most urgent health needs, then please submit your application - we'd love to hear from you.

Job: **Labs*

Organization: **US BU*

Title: *Associate Scientist/Scientist- PCR/Biomarker- 1st shift*

Location: *VA-Richmond-Richmond VA Dabney Rd*

Requisition ID: *207805*

PPD is an affirmative action employer that values diversity as a strength fosters and environment of mutual respect. PPD provides equal employment opportunities without regard to age, race, color, pregnancy, national origin, religion, sex, gender identity, sexual orientation, disability, veteran status or other status within any other protected group

SCIENTISTS- 2- 5 YEARS OF EXPERIENCE- VACCINES- AUTOMATION

Richmond VA Dabney Rd - Richmond - VA

JOB DESCRIPTION

Title: Associate Scientist /Scientist

Department: Vaccine Sciences

Location: Richmond, VA - laboratory based

Between Spark and Innovation – HERE WE ARE

PPD is a leading global contract research organization. At PPD we are passionate, deliberate, and driven by our purpose - to improve health.

PPD Laboratories offer the most comprehensive set of laboratory services available in the industry. Our services accelerate pharmaceutical development for small molecules, biologics, and vaccines, allowing our clients to make faster decisions about their compounds.

As an **Associate Scientist or Scientist**, you will use state-of-the-art **lab robotics and automation equipment** to perform high-quality sample testing for key pharmaceutical clients across the industry. Your sample preparation and sample analysis skills are an integral piece in helping PPD accomplish our goal of helping bring life-changing therapies to market.

Grow your career within the scientific ladder, pursue project management, or develop into a leader. These are just a few career pathways available once you become a part of the PPD team.

At PPD we hire the best, develop ourselves and each other, and recognize the power of being one team. It's not just talk, our award-winning training programs speak for themselves.

Join PPD in our relentless pursuit of excellence! If you feel your skills are a fit for this position - apply now!

#LI-AP1

GD

Job Qualification

Education and Experience:

- B.S. in biology, chemistry, biochemistry or related field with one year experience in a regulated laboratory(for Associate Scientist)
- B.S. in biology, chemistry, biochemistry or related field with two years' experience in a regulated laboratory(for Scientist)

Knowledge, Skills and Abilities:

- Manual dexterity
- Communicate effectively and follow detailed written and verbal instruction
- Cooperate with coworkers within an organized team environment or work alone with supervision
- Manage time effectively to complete assignments in expected time frame
- Maintain a laboratory notebook and complete all documentation with clear and accurate language and according to the Standard Operating Procedures

Working Conditions:

- Able to communicate, receive, and understand information and ideas with diverse groups of people in a comprehensible and reasonable manner.

- Able to work upright and stationary and/or standing for typical working hours.
- Able to lift and move objects up to 25 pounds
- Able to work in non-traditional work environments.
- Able to use and learn standard office equipment and technology with proficiency.
- May have exposure to potentially hazardous elements typically found in healthcare or laboratory environments.
- Able to perform successfully under pressure while prioritizing and handling multiple projects or activities
- As a condition of employment with PPD, in this role, you must have received your Covid-19 vaccine and you must disclose proof of your vaccination status upon employment.

Physical Requirements:

- Ability to work in an upright and /or stationary position for 6-8 hours per day.
- Repetitive hand movement of both hands with the ability to make fast, simple, repeated movements of the fingers, hands, and wrists to operate lab equipment.
- Occasional mobility needed.
- Occasional crouching, stooping, with frequent bending and twisting of upper body and neck.
- Light to moderate lifting and carrying (or otherwise moves) objects including luggage and laptop computer with a maximum lift of 15-20 lbs.
- Ability to access and use a variety of computer software developed both in-house and off-the-shelf.
- Ability to communicate information and ideas so others will understand; with the ability to listen to and understand information and ideas presented through spoken words and sentences.
- Frequently interacts with others to obtain or relate information to diverse groups.
- Works independently with little guidance or reliance on oral or written instructions and plans work schedules to meet goals. Requires multiple periods of intense concentration.
- Performs a wide range of variable tasks as dictated by variable demands and changing conditions with little predictability as to the occurrence. Ability to perform under stress. Ability to multi-task.
- Regular and consistent attendance.

PPD values the health and wellbeing of our employees. We support and encourage individuals to create a healthy and balanced environment where they can thrive. Below is listed the working environment/requirements for this role:

- Able to communicate, receive, and understand information and ideas with diverse groups of people in a comprehensible and reasonable manner.
- Able to work upright and stationary and/or standing for typical working hours.
- Able to lift and move objects up to 25 pounds
- Able to work in non-traditional work environments.
- Able to use and learn standard office equipment and technology with proficiency.
- May have exposure to potentially hazardous elements, including infectious agents, typically found in healthcare or laboratory environments.
- Able to perform successfully under pressure while prioritizing and handling multiple projects or activities.

SCIENTIST - LCMS

Richmond VA Dabney Rd - Richmond - VA

JOB DESCRIPTION

Title: Scientist - LCMS

Department: Chromatography Sciences

Location: Richmond, VA

This is an immediate opening with great benefits and relocation assistance!

PPD is a leading global contract research organization providing comprehensive, integrated drug development, laboratory and lifecycle management services. At PPD, we are passionate, deliberate, and driven by our purpose- to improve health!

Envision a workplace where you have a direct impact on improving health, work alongside expert scientists, use newest technologies and collaborate with industry thought leaders and therapeutic experts. Welcome to PPD® Laboratories, where science is our passion, quality is our commitment and people are the cornerstone of our success.

As a **Scientist** you will perform a variety of complex sample preparation and analysis procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and/or biological matrices.

At PPD we hire the best, develop ourselves and each other, and recognize the power of being one team. We offer continued career advancement opportunities, award winning training and benefits focused on the health and well being of our employees.

Summarized Purpose:

Possesses a thorough understanding of laboratory procedures and can reliably conduct complex analysis with increased independence. Performs a variety of complex sample preparation and analysis procedures to quantitatively measure pharmaceutical and

biopharmaceutical compounds in a variety of formulations and/or biological matrices. Follows validated or experimental analytical procedures with periodic direct supervision. Responsible for review and compilation of results and data comparison against SOP acceptance criteria, methodology, protocol and product specifications. Enters data into databases and reports. Performs self-review for own data prior to QC submission.

Essential Functions:

- Performs a variety of complex sample preparation and analysis procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and /or biological matrices for stability and analytical testing.
- Works with multiple functional groups to meet business needs.
- Plans and organizes work with periodic supervision.
- Sets up and maintains analytical instrumentation.
- Trains on routine operation, maintenance and theory of analytical instrumentation, SOPs and regulatory procedures and guidelines.

- Ensures QA findings are addressed appropriately.
- Aids and training to other team members.
- Problem solving, either independently or with assistance pertaining to extraction and/or instrumentation problems.
- Communicates project status to project leader.
- Performs work assignments accurately, and in a timely and safe manner.
- Reviews, interprets, and analyzes data for technical, quality and compliance to protocols, methods, SOPs, client criteria and Good Manufacturing Practices (GMP) or Good Laboratory Practices (GLP).
- Performs self and peer review of the data for accuracy and compliance with reporting requirements prior to submission to QA and issuance to customers.

GD

#LI-AP1

Job Qualification

Education and Experience:

- Bachelor's degree (in chemistry, biology, biochemistry or related degree) or equivalent and relevant formal academic / vocational qualification
- Previous experience that provides the knowledge, skills, and abilities to perform the job (comparable to 2+ years).
- *In some cases, an equivalency, consisting of a combination of appropriate education, training and/or directly related experience, will be considered sufficient for an individual to meet the requirements of the role.*

Knowledge, Skills and Abilities:

- Demonstrated, hands on exerpience with LCMS
- Experience in a bioanalytical testing lab preferred
- Proficient in Microsoft Excel and Word
- Proven ability to interpret data by performing trend analysis
- Proven ability in technical writing skills
- Ability to independently optimize analytical methods

- Proven problem solving and troubleshooting abilities
- Good written and oral communication skills
- Time management and project management skills
- Ability to work in a collaborative work environment with a team

Working Environment:

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- Able to communicate, receive, and understand information and ideas with diverse groups of people in a comprehensible and reasonable manner.
- Able to work upright and stationary and/or standing for typical working hours.
- Able to lift and move objects up to 25 pounds
- Able to work in non-traditional work environments.
- Able to use and learn standard office equipment and technology with

- proficiency.
- May have exposure to potentially hazardous elements, including infectious agents, typically found in healthcare or laboratory environments.
- Able to perform successfully under pressure while prioritizing and handling multiple projects or activities.
- As a condition of employment with PPD, in this role, you must have received your Covid-19 vaccine and you must disclose proof of your vaccination status upon employment.

PPD Defining Principles:

We have a strong will to win - We earn our customer's trust - We are gamechangers - We do the right thing - We are one PPD -

If you resonate with our five principles above, and ultimately wish to accelerate the delivery of safe and effective therapeutics for some of the world's most urgent health needs, then please submit your application – we'd love to hear from you.

Diversity Statement

PPD is proud to be an affirmative action employer that values diversity as a strength and fosters an environment of mutual respect. PPD is committed to providing equal employment opportunities without regard to age, race, color, pregnancy, national origin, religion, sex, gender identity, sexual orientation, disability, veteran status or status within any other protected group.

Scientist

Primary Talent Partners
Elkton, VA
$21 an hour - Full-time

Apply now

Urgently hiring

Job details

Salary

$21 an hour

Job Type

Full-time

Number of hires for this role

1

Qualifications

- Laboratory experience: 1 year (Required)
- Laboratory information management systems: 1 year (Required)
- Bachelor's (Preferred)

Full Job Description

Primary Talent Partners has a 12- month contract with a large pharmaceutical company!!!

Job Details
Position Responsibilities: * Routine laboratory duties including chemical testing of In-Process samples. * Performs analysis using instrumental methods such as IR, Ultraviolet Vis, GC, High-Performance Liquid Chromatography, and Ultrahigh Pressure Liquid Chromatography as well as titrations and other physical and chemical tests. * This position will be responsible for assisting with laboratory GMP activities by performing instrument calibrations and instrument troubleshooting. * Capable of interacting with and understanding various data acquisition/management software and Laboratory Information Management Systems. * Limited waste water testing.

Qualifications
Education Minimum Requirement: * B.S. Degree in Biology, Chemistry, Microbiology or related Sciences. MS or PhD will be considered. Required Experience and Skills:

- Computer skills are required, should be proficient in standard laboratory techniques
- Experience with chemical bench testing and lab data management systems (LIMS) is advantageous. Familiarity with HPLC, GC, IR, UPLC in either an academic or professional setting a plus.

*This is an entry level position—this position works a 12 hour rotating shift that rotates days/nights and all seven days. Position will require Beta Lactam screening.

Job Type: Full-time

Pay: $21.00 per hour

Schedule:

- 12 hour shift

Education:

- Bachelor's (Preferred)

Experience:

- Laboratory experience: 1 year (Required)
- Laboratory information management systems: 1 year (Required)
- Chemical Bench Testing: 1 year (Preferred)

Work Location: One location

6 days ago

Scientist jobs in Elkton, VA

Jobs at Primary Talent Partners in Elkton, VA

Scientist salaries in Elkton, VA

ASSISTANT SCIENTIST-ASSAY

This posting is no longer accepting new applications.

JOB DESCRIPTION

PPD Clinical Research Services' mission is to improve health. It starts as an idea to find a cure. It becomes a life saved. All in-between, it's you! We know that meaningful results not only require the right approach, but also the right people. We invite you to re-imagine health promoting protocols with us, working alongside our talented, bright and energetic teams.

Envision a workplace where you have a direct impact on improving health, work alongside expert scientists, use newest technologies and collaborate with industry thought leaders and therapeutic experts. Welcome to PPD® Laboratories, where science is our passion, quality is our commitment and people are the cornerstone of our success.

As an Associate Scientist, you will use state-of-the-art technologies to perform high-quality sample testing for key pharmaceutical clients across the industry.

At PPD Clinical Research Services, we hire the best, develop ourselves and each other, and recognize the power of being one team. We offer continued career advancement opportunities, award winning training and benefits focused on the health and well being of our employees.

Summarized Purpose:

Possesses an understanding of laboratory procedures and under general supervision can conduct complex analysis. Performs a variety of routine sample preparation and analysis procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and/or biological matrices for stability and analytical testing.Trains on routine operation, maintenance and theory of analytical instrumentation, SOPs and

regulatory guidelines. Responsible for review and compilation of results and data comparison against SOP acceptance criteria, methodology, protocol and product specifications.

Essential Functions:

- Performs a variety of routine sample preparation and analysis procedures to quantitatively measure pharmaceutical and biopharmaceutical compounds in a variety of formulations and/or biological matrices for stability and analytical testing.
- Trains on routine operation, maintenance and theory of analytical instrumentation, SOPs and regulatory guidelines.
- Communicates project status to project leader.
- Maintains a laboratory notebook and completes all laboratory documentation in clear and accurate language and according to SOP and GLPs.
- Performs daily work assignments accurately, and in a timely and safe manner.
- Reviews, interprets, and analyzes data for technical, quality and compliance to protocols, methods, SOPs, client criteria and

Good Manufacturing Practices (GMP) or Good Laboratory Practices (GLP).
- Performs self and peer review of the data for accuracy and compliance with reporting requirements prior to submission to QA and issuance to customers.

Job Qualification

Education and Experience:

Bachelor's degree or equivalent and relevant formal academic / vocational qualification

Previous experience that provides the knowledge, skills, and abilities to perform the job (comparable to 0 to 1+ years).

In some cases, an equivalency, consisting of a combination of appropriate education, training and/or directly related experience, will be considered enough for an individual to meet the requirements of the role.

Knowledge, Skills, and Abilities:

- Knowledge of routine operation, maintenance and theory of analytical instrumentation, SOPs and regulatory guidelines
- Previous experience with mammalian cell culture

- Knowledge of applicable regulatory authority, compendia and ICH guidelines
- Good written and oral communication skills
- Time management and project management skills
- Proven problem solving and troubleshooting abilities
- Ability to cross-train on sample preparation techniques with another laboratory group
- Ability to work in a collaborative work environment with a team

Working Environment:

PPD values the health and well being of our employees. We support and encourage individuals to create a healthy and balanced environment where they can thrive.Below is listed the working environment/requirements for this role:

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- Able to work upright and stationary and/or standing for typical working hours.
- Able to lift and move objects up to 25 pounds.
- Able to work in non-traditional work environments.
- Able to use and learn standard office equipment and technology with proficiency.
- May have exposure to potentially hazardous elements, including infectious agents, typically found in healthcare or laboratory environments.
- Able to perform successfully under pressure while prioritizing and handling multiple projects or activities.

Integrity – Innovation – Intensity – Involvement

If you resonate with our 4i values above, and ultimately wish to accelerate the delivery of safe and effective therapeutics for some of the world's most urgent health needs, submit your application – we'd love to hear from you!

#GD
#LI

PPDJobs

Diversity Statement

PPD is proud to be an affirmative action employer that values diversity as a strength and fosters an environment of mutual respect. PPD is

committed to providing equal employment opportunities without regard to age, race, color, pregnancy, national origin, religion, sex, gender identity, sexual orientation, disability, veteran status or status within any other protected group.

Appendix F – Letters of Support

Peter John Ramsey, PhD
Chief Scientific Officer
GSK Consumer Healthcare
P.O. Box 26609
Richmond, VA 23261-6609

February 4, 2022

Joseph T. DiPiro, PharmD
Dean and Professor
VCU School of Pharmacy
Richmond, VA 23298

RE: Proposed VCU Bachelor of Sciences in Pharmaceutical Sciences

Dear Dean DiPiro:

I am the Chief Scientific Officer for GlaxoSmithKline (GSK) Consumer Healthcare. Our Global OTC and Wellness Research and Development Center is in Richmond Virginia. Our world-leading Consumer Healthcare business combines trusted science and human understanding to create innovative everyday healthcare brands that consumers trust, and experts recommend across oral health, pain relief, cold, flu and allergy, digestive health and vitamins, minerals and supplements.

We are one of the world's leading over-the-counter (OTC) healthcare companies with number one positions in a number of markets, including the US, India and Germany. Our portfolio of loved and trusted consumer health brands includes *Advil, Excedrin, Voltaren, Sensodyne, Parodontax, Polident, AquaFresh, ChapStick, Nexium 24HR, Tums, Preparation-H, Tums, Alli, Robitussin, Flonase, Otrivin, Panadol, Emergen-C* and *Centrum* among many others around the world.

My understanding is that the VCU School of Pharmacy is submitting a proposal to offer a Bachelor of Science degree in Pharmaceutical Sciences (BSPS) upon approval by the State Commission on Higher Education in Virginia. I also understand that the BSPS degree will provide graduates with a command of basic science concepts including biology, chemistry and biomedical sciences and basic competency in applied pharmaceutical and biomedical sciences, such as pharmaceutics, pharmacology, and medicinal chemistry as well as fundamentals of drug product development, health care systems, and use of drug literature.

I endorse this highly valuable degree track as an addition to the curriculum. In my opinion, the BSPS degree is needed at this time due to a multiplicity of factors as outlined here:

- Enables the industry in talent and recruiting as the curriculum would be unsurpassed at the baccalaureate level in alignment to drug development.
- The availability of an attractive talent pool with skill sets aligned to an industry need. The PharmD degree tends to have an increased clinical and medical focus. As a result, this leaves a gap in the unique skill set in drug formulation and product development.
- There has been an evolving trend to hiring of chemistry, biochemistry and biology majors for entry level scientist roles as such entry roles in industrial pharmacy are not as attractive to PharmD graduates as in previous generations of newly minted pharmacy graduates. Consequently, this requires significant time and investment to train these scientists in principles and applications which would be at the core of the BSPS program.

Some of our GSK R&D leaders, myself included, were happy to previously discuss and provide recommendations for a BSPS curriculum. I believe that graduates will be well prepared to meet specific needs within our company. Successful graduates from this program would be candidates for formulation, analytical, quality assurance and pharmaceutical manufacturing scientist roles with a clear development path to senior level technical development and operations roles across GSK.

We have hired over 100 new colleagues into our Richmond R&D site over the past 2 years. These were primarily formulation development, product development and development operations scientists. I suspect that a significant number of these roles would have been filled with BSPS graduates if available.

I am enthusiastic and supportive of the BSPS program which will enhance our workforce, provide balanced skill sets while enabling us to meet long term recruitment and capability goals.

Sincerely,

Peter John Ramsey, PhD
Chief Scientific Officer
GSK Consumer Healthcare

CIVICA® 2912 Executive Pkwy, ste 325, Lehi, UT 84043 1-888-304-0120 civicarx.org info@civicarx.com

Joseph T. DiPiro, PharmD
Dean
VCU School of Pharmacy
Richmond, VA 23298

RE: Proposed Bachelor of Sciences in Pharmaceutical Sciences

Dear Dr. DiPiro:

I am writing as Chief Human Resources Officer at Civic Rx, a pharmaceutical company with production facilities in Petersburg, Virginia. Civica is committed to address drug shortages and ensure a resilient supply of quality medicines at affordable prices for U.S. patients. Civica is building a 120,000 square-foot state-of-the-art sterile injectable manufacturing facility in Petersburg, potentially creating more than 180 jobs.

I understand that the Virginia Commonwealth University School of Pharmacy is developing a proposal to offer a bachelor of science degree in pharmaceutical sciences (BSPS) upon approval by the State Commission on Higher Education in Virginia. I also understand that the BSPS degree will provide graduates with a command of basic science concepts including biology, chemistry and biomedical sciences and basic competency in applied pharmaceutical and biomedical sciences, such as pharmaceutics, pharmacology, and medicinal chemistry as well as fundamentals of drug product development, health care systems, and use of drug literature.

I believe that the BSPS degree is needed at this time because the stare of Virginia lacks biotech talent that resides in neighboring states, such as North Carolina.

Having seen a summary of the curriculum proposed for the VCU BSPS I believe that graduates will be well prepared to meet specific needs within our company.

Please let me know if I can provide further information.

Sincerely,

Kris Weidling
Chief Human Resources Officer
Civica, Inc.

Wednesday, December 22, 2021

Joseph T. DiPiro, PharmD
Dean
VCU School of Pharmacy
Richmond, VA 23298

RE: Proposed VCU Bachelor of Sciences in Pharmaceutical Sciences

Dear Dr. DiPiro:

I serve as Chief Scientific Officer of Indivior Inc., a global pharmaceutical company headquartered in Richmond, VA. Building on its global portfolio of treatments for opioid use disorder, Indivior has a pipeline of medication candidates designed to both expand on its heritage in this category and potentially address other chronic conditions and co-occurring disorders of substance use disorders, including alcohol use disorder and cannabis use disorder. Indivior employs more than 900 individuals globally and its portfolio of approved products is available in over 40 countries worldwide.

I am responding to a request from Dean Joseph DiPiro at Virginia Commonwealth University (VCU) School of Pharmacy to provide a support letter. I understand that they are developing a proposal to offer a Bachelor of Science degree in Pharmaceutical Sciences (BSPS) upon approval by the State Commission on Higher Education in Virginia. I also understand that the BSPS degree will provide graduates with a command of basic science concepts including biology, chemistry and biomedical sciences and basic competency in applied pharmaceutical and biomedical sciences, such as pharmaceutics, pharmacology, and medicinal chemistry as well as fundamentals of drug product development, health care systems, and use of drug literature.

The BSPS degree is needed at this time in response to substantial changes in the pharmaceutical industry, characterized by new business models, innovative technologies, and increased research and development (R&D) costs. These changes are also expanding the roles and responsibilities of pharmaceutical scientists, along with the knowledge and skills required to be successful. For example, we have recently seen rapid growth in the application of mathematical modeling and simulation in R&D, which has significantly increased the demand for well-trained and experienced quantitative scientists and pharmacometricians. Furthermore, expertise in health economics and outcomes research coupled with real-world evidence generation is increasingly sought after and strongly supported by Regulatory Agencies globally. Finally, beyond depth and breadth of knowledge, communication, collaboration, adaptability, experiential training, and motivation are critical traits and skills in high demand in the pharmaceutical industry.

By identifying cutting edge knowledge and skills necessary for success in the pharmaceutical sciences, I believe that the proposed VCU BSPS training programs will prepare graduates to meet specific needs within our company and keep pace with contemporary workforce needs.

I anticipate that our company could hire BSPS graduates in the future.

Please let me know if I can provide further information.

Sincerely,

Christian Heidbreder

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January 26, 2022

Joseph T. DiPiro, PharmD
Dean
VCU School of Pharmacy
Richmond, VA 23298

RE: Proposed VCU Bachelor of Sciences in Pharmaceutical Sciences

Dear Dr. DiPiro:

I serve as the Chief Human Resources Officer for Phlow™, a pharmaceutical company in Richmond, VA. Phlow is a public benefit pharmaceutical corporation on a mission to reliably supply affordable, high-quality, essential medicines through U.S.-based advanced manufacturing processes. Phlow is committed to addressing drug shortages created by our nation's over-reliance on foreign sources for active pharmaceutical ingredients (API) and key starting materials (KSM) necessary to produce critical essential medicines. In 2020, Phlow received a historic HHS/ASPR/BARDA contract to begin the work of reshoring our essential medicine supply chain and support the COVID -19 surge response. We are united in our effort to fix the broken U.S. pharmaceutical manufacturing supply chain.

I understand that the Virginia Commonwealth University School of Pharmacy is developing a proposal to offer a Bachelor of Science degree in pharmaceutical sciences (BSPS) upon approval by the State Commission on Higher Education in Virginia. I also understand that the BSPS degree will provide graduates with a command of basic science concepts including biology, chemistry and biomedical sciences and basic competency in applied pharmaceutical and biomedical sciences, such as pharmaceutics, pharmacology, and medicinal chemistry as well as fundamentals of drug product development, health care systems, and use of drug literature.

The BSPS degree is needed at this time as our company will be expanding our workforce across all areas of our firm, specifically regulatory, quality, manufacturing, and operations. The foundational learning of biology, chemistry, and biomedical sciences will be critical courses for our future staff.

Having seen a summary of the courses proposed for the VCU BSPS I believe that graduates will be well prepared to meet specific needs within our company. In the next five years, Phlow will be hiring the following roles (this list is not all inclusive):

1001 Haxall Point #1B, Richmond, VA 23219 • 804.207.4893 • info@phlow-usa.com

- Regulatory Affairs
- Quality – drug and drug product quality controls
- Process Chemists
- Analytical Chemists
- Lab managers
- Project managers – for advanced and continuous manufacturing

I anticipate that our company could hire up to 5 -10 BSPS graduates in the next five years. In addition, the BSPS graduates will serve as a future talent pipeline for other roles within our fast growing, entrepreneurial firm.

Please let me know if I can provide further information. My contact information is: hdillard@phlow-usa.com or 804.774.0344.

Sincerely,

Heidi S. Dillard

Heidi S. Dillard
CHRO, Phlow

Appendix G – Student Demand

B.S. in Pharmaceutical Sciences

The VCU School of the Pharmacy is considering the creation of a Bachelor of Science degree program in Pharmaceutical Sciences. Every student who completes the proposed BS in Pharmaceutical Sciences will develop the appropriate knowledge, skills and abilities to address problems in pharmaceutical sciences. The program is a 120-credit hour program. The survey does not collect any personally identifiable information and responses are anonymous. Please read the information below and complete the following questions to help us gauge interest in this program. The survey closes on Wednesday, February 15. Thank you very much for your time and support. Please start with the survey now by clicking on the Start button below.

Intended learning outcomes

Upon completion of the B.S. in Pharmaceutical Sciences program, students will be able to:

- Describe the concepts of basic and biomedical sciences related to pharmaceutical sciences
- Identify the processes, methods, and tools used to discover, develop and approve new drug products
- Apply principles of multidisciplinary sciences to solve problems in drug product development
- Describe the U.S. healthcare system and roles of healthcare providers
- Use tools, experimental techniques, skills and the scientific method to address problems in pharmaceutical sciences
- Apply critical thinking, team science, and advanced problem-solving skills to complex societal health problems
- Demonstrate proficiency in scientific literacy and professional communication skills, including writing, presenting, literature searching, reading, and critically reviewing scientific work

If VCU offered a B.S. in Pharmaceutical Sciences, how likely or unlikely are you to enroll?

- ◯ Very likely
- ◯ Likely
- ◯ Neither likely or unlikely
- ◯ Unlikely
- ◯ Very unlikely

What is your academic standing?

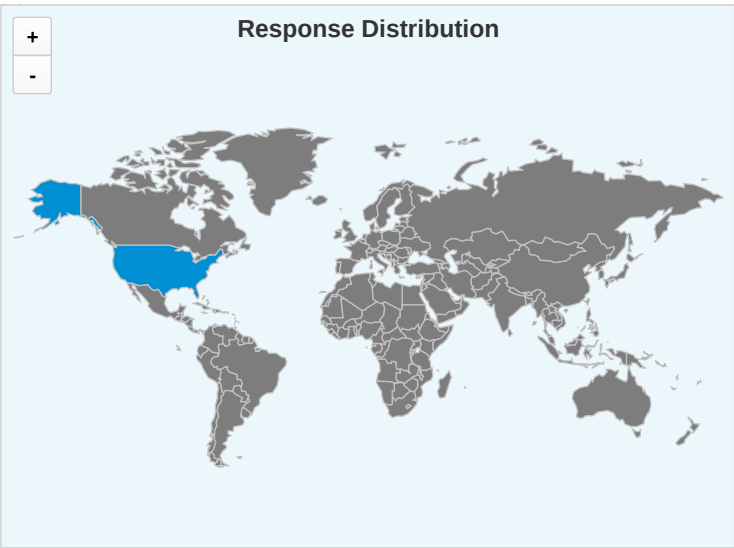
- Freshman (first-year)
- Sophomore (second-year)
- Other

What year to you expect to complete your baccalaureate degree program?

- Fall 2024
- Spring 2025
- Fall 2025
- Spring 2026
- Fall 2026
- Spring 2027
- Fall 2027
- Spring 2028
- Fall 2028
- Fall 2029

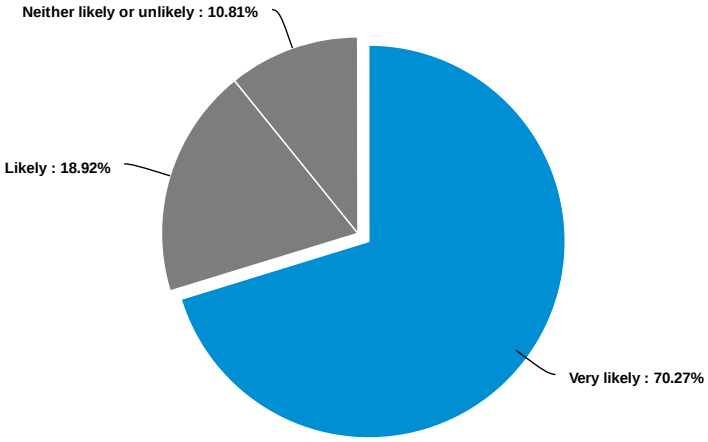
B.S. in Pharmaceutical Sciences - Dashboard

77	51	40	78.43%	11	48 secs
Viewed	Total Responses	Completed	Completion Rate	Dropouts	Average Time



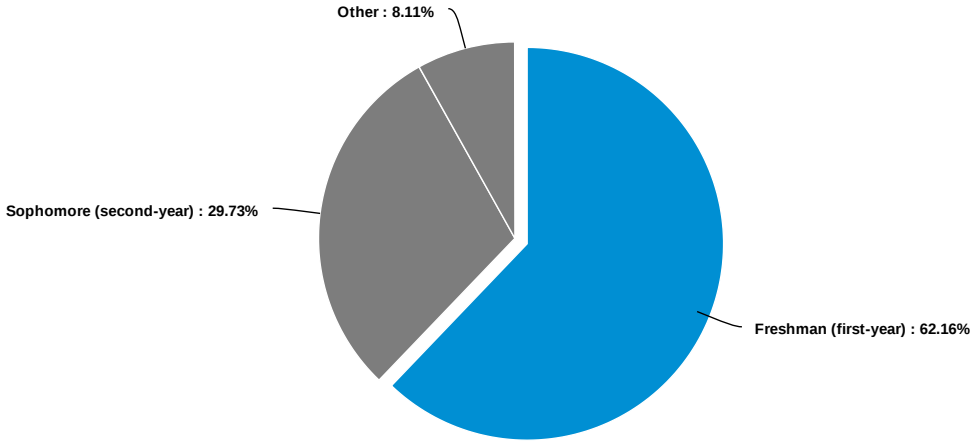
Countries	Responses
US	100.00%
Total	100.00%

If VCU offered a B.S. in Pharmaceutical Sciences, how likely or unlikely are you to enroll?



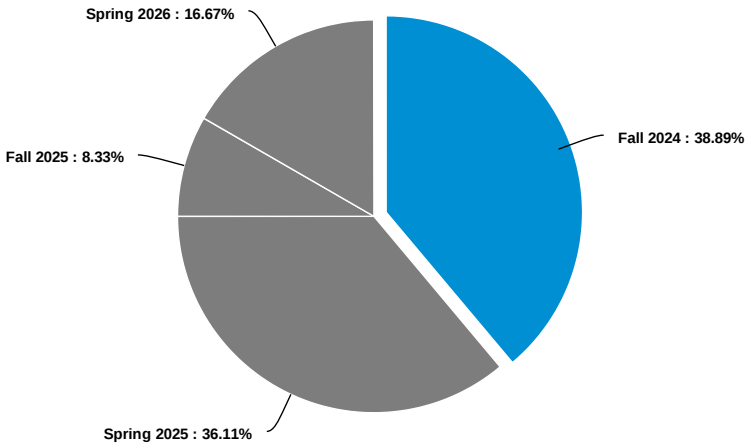
Answer	Count	Percent	20% 40% 60% 80% 100%
Very likely	26	70.27%	
Likely	7	18.92%	
Neither likely or unlikely	4	10.81%	
Unlikely	0	0%	
Very unlikely	0	0%	
Total	**37**	**100%**	

What is your academic standing?



Answer	Count	Percent	20% 40% 60% 80% 100%
Freshman (first-year)	23	62.16%	
Sophomore (second-year)	11	29.73%	
Other	3	8.11%	
Total	**37**	**100%**	

What year to you expect to complete your baccalaureate degree program?



Answer	Count	Percent	20%	40%	60%	80%	100%
Fall 2024	14	38.89%					
Spring 2025	13	36.11%					
Fall 2025	3	8.33%					
Spring 2026	6	16.67%					
Fall 2026	0	0%					
Spring 2027	0	0%					
Fall 2027	0	0%					
Spring 2028	0	0%					
Fall 2028	0	0%					
Fall 2029	0	0%					
Total	**36**	**100%**					