



## STUDENT LEARNING OUTCOMES

College of Arts & Sciences



### Undergraduate Programs - Bachelor

#### B.S. in Biology

Upon completion of the B.S. degree in Biology, students will:

- have a basic knowledge of the principles of biology.
- be able to use their knowledge of concepts in biology to solve new problems.
- have a high degree of proficiency in the use of computer technology.
- be able to communicate their knowledge and results effectively for a wide range of purposes and intended audiences.

#### B.S.Ed. in Biology Education

Upon completion of the B.S.Ed. degree in Biology Education, students will:

- have a basic knowledge of the principles of biology.
- be able to apply their knowledge of biological principles and the scientific method of inquiry to solve new problems.
- have a high degree of proficiency in the use of computer technology.
- be able to communicate their knowledge and results effectively.
- create a safe and respectful learning environment with an awareness of developmental levels and needs of learners.
- demonstrate professional dispositions of effective teachers to positively impact student learning while contributing to the well-being of their district.

## **B.S. in Computer Game Design**

Upon completion of the B.S. degree in Computer Game Design, students will:

- be prepared to contribute to interactive, multimedia software design and development projects, such as digital games, mobile apps, websites, educational software, interactive architectural models, marketing software, and simulations.
- be prepared to work effectively on interdisciplinary teams, with appropriate communication, teamwork, and process skills using collaboration tools as appropriate.
- know some specific tools and processes applicable to game development or similar software efforts, but more importantly graduates will be prepared to quickly and readily apply the principles they have learned to using new or updated tools and processes for similar purposes. Graduates will have applied agile processes while using specific tools, including: multiple game engines, multiple programming languages, 3d modeling, 2d graphics (both raster and vector), web-programming tools, and version control systems.

## **B.S. in Cyber Leadership and Intelligence**

Upon completion of the B.S. degree in Cyber Leadership and Intelligence, students will:

- be able to appreciate and understand an investigation of a security breach and what will be involved in detecting cyber intrusions (basic investigative techniques, computer forensics, evidence collection and preservation, legal issues, and personal privacy issues).
- be able to demonstrate knowledge of major religions, literary traditions, geography, history, and different cultural values.
- be able to demonstrate an understanding of how nation states have historically and currently conduct trade, diplomacy, and wars.
- be able to work effectively as a member of a team and gain experience leading small teams to be ready for entry level management positions in businesses and government.

## **B.S. in Digital Arts and Design**

Upon completion of the B.S. degree in Digital Arts and Design, students will:

- be able to effectively work in a collaborative group.
- have requisite mastery over necessary design theory and skills.
- be able to think creatively, holistically, and resourcefully.

- be able to communicate effectively – visually/audio, written and spoken.
- have completed a strong Capstone/undergraduate research project/portfolio.

## **B.S.Ed. in English Education**

Upon completion of the B.S.Ed. degree in English Education, students will:

- have followed a specific curriculum and will have met appropriate performance assessments for pre-service English language arts teachers.
- be able to adopt and strengthen professional attitudes needed by English language arts teachers through modeling, advisement, instruction, field experiences, assessment of performance, and involvement in professional organizations.
- be knowledgeable about language; literature; oral, visual, and written literacy; print and non-print media; technology; and research theory and findings.
- acquire and demonstrate the dispositions and skills needed to integrate knowledge of English language arts, students, and teaching.

## **B.S. in English for New Media**

Upon completion of the B.S. degree in English for New Media, students will:

- be able to analyze and critically respond to a variety of texts, including both traditional, literary print texts and new media texts, including interactive texts, film, still images, etc.
- be able to express themselves clearly and effectively in writing, whether creative or expository.
- be able to express themselves clearly and effectively in verbal discussions and presentations.
- be able to integrate elements of design to best serve rhetorical purpose.
- be able to create a variety of texts (traditional expository prose, hypertext, creative writing, etc.) that integrate multiple modalities into a variety of media (traditional documents, web-based texts and content, video, audio, etc.).
- be able to identify or formulate an appropriate rhetorical framework to communicate effectively for the purpose and audience.
- be able to demonstrate critical thinking that is clear, insightful, in depth, and relevant to the topic. To this end, the student can see, appreciate, and pursue conceptual connections among texts from across time, genres, cultures, and media.

## **B.G.S. in General Studies**

Upon completion of the B.G.S. degree in General Studies, students will:

- be knowledgeable and competent in computer literacy.
- be able to evaluate and synthesize information from their three areas of emphasis, and professional and personal experiences.
- be able to demonstrate their proficiency in locating information and ideas in scholarly sources.
- be able to demonstrate their proficiency in scholarly writing and applying writing conventions of appropriate style manuals (MLS, APA, ASA).
- be able to demonstrate proficiency in marketing themselves for employment which fits their professional and personal career goals.

## **B.S.Ed. in Mathematics Education**

Upon completion of the B.S.Ed. degree in Mathematics Education, students will:

- know, understand and apply the process of mathematical problem solving.
- reason, construct, and evaluate mathematical arguments and develop an appreciation for mathematical rigor and inquiry.
- communicate their mathematical thinking orally and in writing to peers, faculty and others.
- recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.
- use varied representations of mathematical ideas to support and deepen students' mathematical understanding.
- embrace technology as an essential tool for teaching and learning mathematics.
- possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.
- demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.
- emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.

- use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.
- demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.
- apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.
- demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.
- apply and use measurement concepts and tools.

## **B.S. in Mathematics for Information Systems**

Upon completion of the B.S. degree in Mathematics for Information Systems, students will:

- be able to use mathematical symbols and mathematical structure to model and solve real world problems.
- be able to demonstrate appropriate communication skills related to mathematical terms and concepts.
- be able to demonstrate the correct use of quantifiable measurements of real world situations.

## **B.S. in Physical Science**

Upon completion of the B.S. degree in Physical Science, students will:

- have a basic knowledge of the principles of chemistry, physics, and physical science.
- be able to use their knowledge of concepts in physical science to solve new problems.
- have a high degree of proficiency in the use of computer technology.
- be able to communicate their knowledge and results effectively for a wide range of purposes and intended audiences.

## **B.S. in Respiratory Care**

See A.S. in Respiratory Care below.

## **Undergraduate Programs - Associate**

### **A.A. in General Studies**

Upon completion of the A.A. degree in General Studies, students will:

- be knowledgeable and competent in computer programming.
- be knowledgeable and appreciative of the Fine Arts.
- be knowledgeable and appreciative of the Social Sciences.
- continue their education in baccalaureate or professional programs.

### **A.S. or B.S. in Respiratory Care**

Upon completion of the A.S. or B.S. degree in Respiratory Care, students will:

- be aware of acceptable attrition and retention rates.
- have confidence in acceptable positive job placement.
- achieve an acceptable score on the Comprehensive Written RRT Self-Assessment Exam (CWRRT SAE) prior to graduation from the A.S. program.
- achieve an acceptable score on the Comprehensive Clinical Simulation Self-Assessment Exam (CS SAE) prior to graduation from the B.S. program.
- achieve acceptable credentialing success on the NBRC Certified Respiratory Therapist (CRT) Exam.
- achieve acceptable credentialing success on the NBRC Registered Respiratory Therapist (RRT) Exam.
- demonstrate overall satisfaction on the graduate surveys.
- achieve a satisfactory rate of participation on the graduate surveys.

## **Undergraduate Programs - Certificate**

### **Certificate in English for New Media**

Upon completion of the Certificate in English for New Media, students will:

- be able to create digital textual and visual materials illustrating design skills, social media awareness, and rhetorical strategies for online publishing.

## Certificate in Digital Photography

Upon completion of the Certificate in Digital Photography, students will:

- have sufficient mastery of photography to complete the technical and formal challenges pertinent to a body of original work.
- be able to use design knowledge to produce visually accurate photographs.
- be able to clearly communicate the content and context of their photographs visually, orally and in writing.
- be able to work independently or collaboratively to achieve stated goals.

## Certificate in Multimedia Design and Production

Upon completion of the Certificate in Multimedia Design and Production, students will be able to:

- apply the fundamental principles of visual design to their projects in a way that enhances its communicative potential.
- communicate narratives, concepts, identities, and emotions across a variety of media.
- exhibit a thoughtful application of color and typographic design to electronic communications.
- contribute effectively to a team or organization where the planning, design, and production of visual communications are key activities and integral parts of organizational strategy.

## Certificate in Multimedia

Upon completion of the Certificate in Multimedia, students will be able to:

- apply the fundamental principles of visual design to their projects in a way that enhances its communicative potential.
- communicate narratives, concepts, identities, and emotions across a variety of media.
- exhibit a thoughtful application of color and typographic design to electronic communications.
- contribute effectively to a team or organization where the planning, design, and production of visual communications are key activities and integral parts of organizational strategy.

## **Certificate in Mathematical Foundations of Cryptography**

Upon completion of the Certificate in Mathematical Foundations of Cryptography, students will:

- understand and apply elementary probability, divisibility, and modular arithmetic arguments.
- perform mathematical calculations used in cryptographic techniques.
- understand and apply cryptographic techniques.
- understand information security algorithms and protocols.
- understand fundamental abstract algebra principles used in classical and modern cryptosystems.
- develop skills in problem solving and programming concepts.

## **Certificate in Professional and Technical Communication**

Upon completion of the Certificate in Professional and Technical Communication, students will:

- be able to create digital textual and visual materials illustrating design and writing skills for technical documents and workplace communications.

### **Graduate Programs - Certificate**

#### **Graduate Certificate in Digital Humanities**

Upon completion of the Graduate Certificate in Digital Humanities, students will:

- be able to create projects for scholarly and public audiences, illustrating a sound understanding of digital humanities core practices and skills.