Hunter Baker (2010). Dean for the College of Arts and Sciences and Associate Professor of Political Science. B.A., Florida State University; M.P.A., University of Georgia; J.D., University of Houston Law Center; Ph.D., Baylor University.

Katie Yeaglin (2018). Administrative Assistant to the Dean for the College of Arts and Sciences.

Mark Bolyard (2006). Associate Dean of Arts and Sciences and University Professor of Biology. B.A., Hanover College; Ph.D., University of North Carolina; Additional study, Michigan State University; Penn State College of Medicine.

James Marcus Lockett (2004). Professor of Biology and Director of Graduate Programs. B.S. and M.S., Murray State University; Ph.D., University of Tennessee.

John Kinchen, III (2018). Chair, Professor of Music and Director of Choral Activities. B.M., Eastman School of Music, University of Rochester; M.M., Florida State University; D.M.A., Boston University.

A list of faculty who teach in graduate programs is available online at www.uu.edu/academics/faculty/

Degrees Offered

- Master of Science in Biology
- Master of Science in Conservation Biology
- Master of Music in Music Technology

Mission Statement

The College of Arts and Sciences provides an excellent liberal arts education that is informed by Christian faith and prepares students for life, careers, and service.

Goals

- Excellence driven: The College of Arts and Sciences is committed to excellence in every aspect of the academy, including teaching, scholarship, and service.
- Christ-centered: The College of Arts and Sciences seeks to foster spiritual growth and the development of a vital Christian worldview in both faculty and students.
- People-focused: The College of Arts and Sciences consists of faculty and staff committed to modeling the concept of servant leadership.
- Future-directed: The College of Arts and Sciences seeks to nurture lifelong learning skills, empowering students and faculty to impact their local and global communities.
Available on the Jackson Campus

Purpose Statement:
To enhance student preparation for professional school, graduate school, or career opportunities.

Program Description
The Master of Science in Biology is offered through two tracks: Pre-Professional and General Biology. The Pre-Professional track is designed for students who are seeking to be better prepared for health-related professional programs. The General Biology track is a broader, more customized program for students who are seeking to further their education or career opportunities through advanced training in Biology. The program includes mentoring and advising for students for both professional programs and career preparation. The Master of Science in Biology is very affordable compared to similar programs around the country, and students who complete advanced training in Biology at Union are extremely well prepared to be successful at the professional level (for more information, please visit the program website at www.uu.edu/msbio).

Admission Information

Admission Requirements
• Bachelor’s degree from accredited college or university; Official transcript(s) showing all course work, completion of baccalaureate degree(s), and all graduate credit previously attempted. Even if withdrawal occurred prior to earning credits and even if those credits do not apply to the current degree being sought, official transcripts must be sent from each institution.
• Minimum undergraduate GPA of 2.5.
• Minimum of 12 undergraduate hours in biology applicable to a biology major.
• Statement of purpose (500-1000 words) which identifies your educational goals and expectations from the program, as well as your primary and secondary career objectives.
• Three letters of recommendation.
• Scores from professional exam recommended (i.e, GRE, MCAT, PCAT, etc.).

Retention Criteria
• Must maintain minimum 3.0 GPA
• If not achieved after Fall term, student will be on probation, and will be able to raise the GPA with the Winter term course
• If GPA of 3.0 is not achieved after Winter term, student will meet with the program director to discuss progress.

Alternate List
Students who otherwise meet the eligibility requirements for the Master of Science in Biology but who apply after the entering class has been filled will be placed on an alternate list and will be notified if they are selected for inclusion in the program for the upcoming academic year. Students who are placed on the alternate list and who are not admitted will receive a refund of half of their Application Fee ($25).

Completion Requirements
Both the Pre-Professional and General Biology tracks require 30 credit hours and a final GPA of 3.0 to graduate. Students should complete the 30 hours over two semesters, typically taking 15 hours in the fall and 15 hours in the spring. This sequence includes a 2 hour required course in the fall, Career Development in Biology, and a 2 hour required Graduate Project in both the fall and spring, leading to the completion of a non-thesis final paper. At least two courses during the fall and spring terms should include the accompanying lab section. Students may take additional laboratory sections if space permits.

A. BIO 518, 570, 571, 598
B. Fall Semester: Three courses from BIO 510, 512, 517, 519, 520, 521, 525, 527, or 540 (two of the selected courses must have a lab component). Additional options for General Track: BIO 501, 529, 536, 543, 555, 559.
C. Spring Semester: Three courses from BIO 505, 507, 510, 515, 516, 522, 523, 527, or 544 (at least one of the selected courses must have a lab component). Additional options for General Track: BIO 511, 528, 535, 537, 538, 555, 558.
D. Special Topics in Cell and Molecular Biology may be considered if applicable (BIO 597).

Each student will choose a mentor who will work closely with the student to select appropriate courses. The mentor will also work with the student throughout the Graduate Project courses to complete the non-thesis final paper.

Financial Information
• Application Fee: $50
• Laboratory Fees: A lab fee will be assessed for each lab course.
• Tuition/semester hour: $540
• Deposit: $500 (will be applied to your first semester’s tuition following matriculation); due May 1 or within two weeks of acceptance of your application. The deposit is 100% refundable within 20 business days of the acceptance of your application, 50% refundable between 21 and 35 days after acceptance of your application, non-refundable after 35 days of acceptance of your application). No refunds of deposits will be given after July 1.
• General Student Fee: $25/hour
• All financial information is subject to change without notice.
Financial Aid information for graduate students is available on our website at www.uu.edu/financialaid. Generally, graduate students may be eligible for Federal Direct student loans or private alternative student loans (www.uu.edu/financialaid/loans/alternative-lender-list.cfm), depending on the program of study and the eligibility of the borrower. Union University is also approved by the Department for Veterans Affairs to offer educational benefits to veterans, reservists, and dependents of veterans who qualify for Veterans Benefits. Any person who qualifies for VA Benefits should check with the Office of Student Financial Planning as soon as possible after acceptance into a graduate program. Additional external scholarship information may be obtained through www.fastweb.com

Course Descriptions: Biology (BIO)

501. Invertebrate Zoology (4) F–Even Years
Students will develop practical vocational skills by working within a framework of designing, performing, and communicating novel scientific research as we explore the diversity, natural history, physiology, and behavior of invertebrate animals. Three hours lecture and 3 hours laboratory/week.

505. Applied Anatomy & Physiology I (3) S, February Accelerated
Prerequisites: BIO 221 and 222 or permission of instructor.
An intensive examination of the human body that addresses the normal complex physiological processes of the cell, fluids and electrolytes, acid-base balance, temperature regulation, vascular hemodynamics, mobilization of fluids through the body and lymphatic system, musculoskeletal systems and function of the myocardium. The acquired information will provide the student with a body of knowledge to critically evaluate co-existing conditions of the surgical patient.

507. Applied Anatomy & Physiology II (3) S, April Accelerated
Prerequisites: BIO 221 and 222 or permission of instructor.
A continuation of 505 focusing on the normal complex physiological processes of blood components and coagulation and the respiratory, renal, endocrine, digestive and nervous system.

510. Advanced Human Gross Anatomy (3) F, S
This course will incorporate the dissection of cadavers and viewing of anatomical models in understanding the nervous, endocrine, cardiovascular, respiratory, digestive, and urinary systems of the human body. Additional emphasis is placed on the needs of professional health care personnel.

511. Conservation Techniques (3) S–Even Years
A field intensive introduction to techniques for determining the age of many species, trapping for population assessments, terrestrial and aquatic sampling methods, methods for assessing population health through necropsies, and habitat management techniques. One hour lecture and 6 hours laboratory/week.

512/512L. Comparative Vertebrate Anatomy (3) and Comparative Vertebrate Anatomy Lab (1) F–Odd Years
Study of the similarities of anatomy and early development of vertebrates, complemented by dissection of representative adults. Three hours lecture and optional 3 hours laboratory/week.

515/515L. Genetics (3) and Genetics Lab (1) S
A study of the principles of heredity including both classical and molecular genetics. Three hours lecture and optional 3 hours laboratory/week.

516/516L. Physiology (3) and Physiology Lab (1) S
A study of the principles of physiology, emphasizing metabolic processes common to many organisms. Three hours lecture and optional 3 hours laboratory/week.

517/517L. Developmental Biology (3) and Developmental Biology Lab (1) F–Odd Years
A study of development in organisms, including both classical, descriptive embryology and contemporary investigations of processes involved in morphogenesis and differentiation. Three hours lecture and optional 3 hours laboratory/week.

518. Career Development in Biology (2) F
This course is designed to develop critical professional skills in students interested in a career in the biological sciences. An emphasis will be in guiding the students through the professional or graduate school application process, specifically developing their interviewing skills. It will stress the significance of networking in professional and social development and help the students find the best fit for their professional education or job search, as well as educating them on alternative career paths in the biological sciences.

519. Clinical Microbiology (2) F
A review of the organisms associated with infections in humans with application directed towards those most commonly encountered in the United States. This will focus on how the body responds to various types of infections, and relevant clinical treatment methods.

520/520L. Immunology (3) and Immunology Lab (1) F
Structure and function of the immune system and some diseases related to the immune system. Laboratory will focus on a group research project. Three hours lecture and optional 3 hours laboratory/week.

521/521L. Advanced Human Anatomy & Physiology I (3) and Advanced Human Anatomy & Physiology I Lab (1) F
The 1st of a 2-semester sequence designed to establish a knowledge base of human anatomy and physiology. Body systems studied include the integumentary, skeletal, muscular, and nervous systems. Three hours lecture and optional 3 hours laboratory/week.
522/522L. Advanced Human Anatomy and Physiology II (3) and Advanced Human Anatomy & Physiology II Lab (1) S
Prerequisite: BIO 521.
A continuation of BIO 521 studying body systems: endocrine, cardiovascular, respiratory, urinary, digestive, and lymphatic. Three hours lecture and optional 3 hours laboratory/week.

523/523L. Cell Biology (3) and Cell Biology Lab (1) S
A study of biological systems at the cellular and subcellular levels emphasizing functional aspects such as protein processing and sorting, membrane systems, energy generation in mitochondria and chloroplasts, and cell signaling. Three hours lecture and optional 3 hours laboratory/week.

525/525L. Molecular Biology (3) and Molecular Biology Lab (1) F
Basic principles of molecular biology focusing on recombinant DNA methods as applied to a variety of biological questions. Students will learn basic research laboratory skills through a wide range of methods from gel electrophoresis to subcloning. Three hours lecture and optional 3 hours laboratory/week.

527. Pathobiology (4) F or S
This course introduces students to the pathobiology underlying human disease progressions with an emphasis on cell injury, adaptation and death, genetic components of disease processes, systemic disease, including cardiovascular, renal, respiratory, endocrine, neurologic and gastrointestinal disorders, and neoplasia. Along with lectures, students will engage with primary research literature to enhance their understanding of various disease processes and research methodology, including critical analysis of basic science and epidemiological data.

528. Tropical Ecology (4) Su
This field course is designed to showcase the basic flora and fauna of the tropics and review ecological principles within these unique tropical environments. Lectures and labs focus on the nature of life in tropical climates with specific emphasis on coral reefs, tropical rainforests, mangrove swamps, and seagrass communities. Through learning activities students review taxonomic diversity, form and function, ecological roles, and adaptations of representative tropical organisms. Topics include: adaptation to disturbance, physiological mechanisms, locomotion and migrations, defenses against predation, sensory reception, productivity, feeding, biodiversity, reproduction and symbiosis through the lens of tropical ecosystems. Three hours lecture and 3 hours laboratory/week.

529. Environmental GIS (4) F–Odd Years
This course is an introduction to GIS (Global Information Systems) in the context of applications that focus on the environment, conservation biology, and ecology. Main topics covered during the semester will include the historical development of GIS technology, its application, and its theoretical background. Students will develop skills and competency using GIS software and data collection tools. They will apply program knowledge and skills to investigate questions related to ecology, wildlife management, conservation biology, and natural resource management. Three hours lecture and 3 hours laboratory/week.

535. Conservation Biology (3) S–Even Years
A study of the principles of conservation and wildlife management. Examines the ecology of species of interest and the habitat manipulation techniques used in the conservation of such organisms.

536/536L. Ecology and Conservation of the Vertebrates (3) and Ecology and Conversation of the Vertebrates Lab (1) F–Even Years
Study of the natural history and ecology of North American vertebrates, including fish, amphibians, reptiles, birds and mammals. Conservation concerns of particular vertebrates will be examined. Three hours lecture and optional 3 hours laboratory/week.

537. Taxonomy of the Vascular Plants (4) S–Odd Years
A study of the vascular plants of the eastern United States, focusing on the common herbaceous plants, vines, shrubs, and trees and their identification in the field. Field trips required. Two hours lecture and 6 hours laboratory/week.

538/538L. Ecology (3) and Ecology Lab (1) S
A study of the interactions between organisms and their biological and physical environments. Three hours lecture and optional 3 hours laboratory/week.

542. Experimental Design and Biostatistics (4) F
Statistical analysis of data in a biological context. Students will be given the opportunity to identify a variety of biological problems, develop specific questions, design and conduct experiments to address these questions, formulate and test hypotheses, choose and run the appropriate statistical test, and interpret the outcomes of such test. Three hours lecture and 3 hours laboratory/week.

543. Natural Resources Policy (3) F–Odd Years
Examines current laws and policies governing public and private lands and the conservation of wildlife in the United States.

544. Cancer Biology (3) S, February Accelerated
This eight week directed study course will focus on the cellular and molecular mechanisms of cancer progression, with emphasis on key discoveries and current research. Topics include: cellular transformation, malignancy, metastatic disease and common genetic mutations. Students will review, discuss and present current literature in the field and explore related studies on cancer systems biology, holistic/functional treatments, and oncology related health disparities. Web based format, with scheduled meetings TBD on the Jackson campus.

555. Environmental Ethics (3) F–Odd Years
This course will examine the relationship between humans and their natural environment; addressing the problems confronting the necessity to balance conservation with human need and the use of natural resources. Topics to be explored include an ethical consideration for the urban environment and of wilderness preservation, the interplay of local and global environmental ethics, and the ethics of sustainability. An overarching view of the scope of historical and modern bioethical issues will also enter into our discussions.
556. Marine Biology (3) S
Lectures and labs on the nature of life in the ocean and in coastal environments. The first part of the semester is spent at Union University facilities and the second part is spent exploring the coastal environments of South Georgia and the Atlantic Coast of Florida. There is an extra fee associated with this class.

557. Ornithology (3) S
Focuses on the identification and ecology of birds in the eastern United States. Multiple field trips are required, culminating with a 10-day trip to South Georgia and Florida. There is an extra fee associated with this class.

558/558L. Plant Physiology (3) and Plant Physiology Lab (1) S–Even Years
Study of physiological factors influencing the chemical and structural composition of plant absorption and utilization of water and minerals; photosynthesis, translocation, respiration, nitrogen metabolism; and growth and development. Physiology is the study of how plants function, including resource acquisition, energy creation and use, resource allocation, life cycle, and stress response. Three hours lecture and optional 3 hours laboratory/week.

559. Dendrology (4) F–Even Years
This course will focus on the identification and management of trees, focusing on forest ecology and silvicultural practices. The laboratory will include field trips that will focus on tree identification. Three hours lecture and 3 hours laboratory/week.

570. Graduate Project I (2) F
Students enrolling in this course will work with a faculty mentor on a year-long project, culminating in a research paper, which will be defended in a public forum before a committee of three faculty members (including the mentor). The mentor will work with the student to select courses to support the general overview of the project.

571. Graduate Project II (1-4) S
Continuation of BIO 570.

585. Special Topics in Biology (1-4)
Group studies which do not appear in the department course offerings. Course content will be determined by need.

597. Special Topics in Cell and Molecular Biology (3) S
Variable content course designed to address cutting-edge topics in cell and molecular biology.

598. Graduate Seminar (1) F, S
Students will develop proficiency in searching biological literature, writing a well-constructed summary of primary literature, making an oral presentation of primary literature and data analysis. Students will improve their critical thinking skills and their ability to evaluate and explain data. Students will also engage in meaningful discussions with other students and Biology Faculty on a number of relevant biological topics. This course may be repeated once.
Purpose Statement:
To provide enhanced training in Conservation Biology to students who desire to enhance their career or prepare for doctoral studies.

Program Description
Students will perform an extensive research project on which they will write their thesis. A flexible curriculum allows students to explore their specific interests. For more information, please visit the program website at www.uu.edu/msconbio.

Admission Information
Admission Requirements
• Bachelor’s degree from accredited college or university; Official transcript(s) showing all course work, completion of baccalaureate degree(s), and all graduate credit previously attempted. Even if withdrawal occurred prior to earning credits and even if those credits do not apply to the current degree being sought, official transcripts must be sent from each institution.
• Minimum undergraduate GPA of 2.75.
• Minimum of 12 undergraduate hours in biology applicable to a biology major. Conservation biology, biology, environmental science, forestry, or related area is preferred.
• Statement of purpose (500-1000 words) which identifies your educational goals and expectations from the program, as well as your primary and secondary career objectives.
• Research topic selection (500-1000 words): Explain your rationale and interest in a particular research project and how you anticipate this particular project assisting you in your career.
• Three letters of recommendation.
• Scores from GRE are required.

Retention Criteria
• Must maintain minimum 3.0 GPA
• Successful proposal defense completed during the first semester or first winter term.
• Committee approval and satisfactory progress towards project completion.

Alternate List
Students who otherwise meet the eligibility requirements for the Master of Science in Conservation Biology but who apply after the entering class has been filled will be placed on an alternate list and will be notified if they are selected for inclusion in the program for the upcoming academic year.

Students who are placed on the alternate list and who are not admitted will receive a refund of half of their Application Fee ($25).

Completion Requirements
Students are required to complete 32 credit hours and have a final GPA of 3.0 to graduate. Students complete
A. BIO 540 (if not completed as an undergraduate), 555, 598 (to be taken twice)
B. Research hours: 5-9
C. Electives: 18 hours
D. Successful defense of a thesis project.

Financial Information
• Application Fee: $50
• Laboratory Fees: A lab fee will be assessed for each lab course.
• Research assistantship includes the cost of tuition, up to 32 credit hours.
• General Student Fee: $25/hour
• Deposit: $500 (will be applied to your general student and laboratory fees), due May 1 or within two weeks of acceptance of your application. The deposit is 100% refundable within 20 business days of the acceptance of your application, 50% refundable between 21 and 35 days after acceptance of your application, non-refundable after 35 days of acceptance of your application). No refunds of deposits will be given after July 1.
• All financial information is subject to change without notice.

Financial Assistance
Financial aid information for graduate students is available on our website at www.uu.edu/financialaid. Generally, graduate students may be eligible for Federal Direct student loans or private alternative student loans (www.uu.edu/financialaid/loans/alternative-lender-list.cfm), depending on the program of study and the eligibility of the borrower. Union University is also approved by the Department for Veterans Affairs to offer educational benefits to veterans, reservists, and dependents of veterans who qualify for Veterans Benefits. Any person who qualifies for VA Benefits should check with the Office of Student Financial Planning as soon as possible after acceptance into a graduate program. Additional external scholarship information may be obtained through www.fastweb.com.
501. Invertebrate Zoology (4) F–Even Years
Students will develop practical vocational skills by working within a framework of designing, performing, and communicating novel scientific research as we explore the diversity, natural history, physiology, and behavior of invertebrate animals. Three hours lecture and 3 hours laboratory/week.

511. Conservation Techniques (3) S–Even Years
A field intensive introduction to techniques for determining the age of many species, trapping for population assessments, terrestrial and aquatic sampling methods, methods for assessing population health through necropsies, and habitat management techniques. One hour lecture and 6 hours laboratory/week.

512/512L. Comparative Vertebrate Anatomy (3) and Comparative Vertebrate Anatomy Lab (1) F–Odd Years
Study of the similarities of anatomy and early development of vertebrates, complemented by dissection of representative adults. Three hours lecture and optional 3 hours laboratory/week.

515/515L. Genetics (3) and Genetics Lab (1) S
A study of the principles of heredity including both classical and molecular genetics. Three hours lecture and optional 3 hours laboratory/week.

516/516L. Physiology (3) and Physiology Lab (1) S
A study of the principles of physiology, emphasizing metabolic processes common to many organisms. Three hours lecture and optional 3 hours laboratory/week.

528. Tropical Ecology (4) Su
This field course is designed to showcase the basic flora and fauna of the tropics and review ecological principles within these unique tropical environments. Lectures and labs focus on the nature of life in tropical climates with specific emphasis on coral reefs, tropical rainforests, mangrove swamps, and seagrass communities. Through learning activities students review taxonomic diversity, form and function, ecological roles, and adaptations of representative tropical organisms. Topics include: adaptation to disturbance, physiological mechanisms, locomotion and migrations, defenses against predation, sensory reception, productivity, feeding, biodiversity, reproduction and symbiosis through the lens of tropical ecosystems. Three hours lecture and 3 hours laboratory/week.

529. Environmental GIS (4) F
This course is an introduction to GIS (Global Information Systems) in the context of applications that focus on the environment, conservation biology, and ecology. Main topics covered during the semester will include the historical development of GIS technology, its application, and its theoretical background. Students will develop skills and competency using GIS software and data collection tools. They will apply program knowledge and skills to investigate questions related to ecology, wildlife management, conservation biology, and natural resource management. Three hours lecture and 3 hours laboratory/week.

535. Wildlife Management (3) S–Even Years
A study of the principles of conservation and wildlife management. Examines the ecology of species of interest and the habitat manipulation techniques used in the conservation of such organisms.

536/536L. Ecology and Conservation of the Vertebrates (3) and Ecology and Conversation of the Vertebrates Lab (1) F–Even Years
Study of the natural history and ecology of North American vertebrates, including fish, amphibians, reptiles, birds and mammals. Conservation concerns of particular vertebrates will be examined. Three hours lecture and optional 3 hours laboratory/week.

537. Taxonomy of the Vascular Plants (4) S–Odd Years
A study of the vascular plants of the eastern United States, focusing on the common herbaceous plants, vines, shrubs, and trees and their identification in the field. Field trips required. Two hours lecture and 6 hours laboratory/week.

540. Experimental Design and Biostatistics (4) F
Statistical analysis of data in a biological context. Students will be given the opportunity to identify a variety of biological problems, develop specific questions, design and conduct experiments to address these questions, formulate and test hypotheses, choose and run the appropriate statistical test, and interpret the outcomes of such test. Three hours lecture and 3 hours laboratory/week.

543. Natural Resources Policy (3) F–Odd Years
Examines current laws and policies governing public and private lands and the conservation of wildlife in the United States.

555. Environmental Ethics (3) F–Odd Years
This course will examine the relationship between humans and their natural environment; addressing the problems confronting the necessity to balance conservation with human need and the use of natural resources. Topics to be explored include an ethical consideration for the urban environment and of wilderness preservation, the interplay of local and global environmental ethics, and the ethics of sustainability. An overarching view of the scope of historical and modern bioethical issues will also enter into our discussions.

556. Marine Biology (3) S
Lectures and labs on the nature of life in the ocean and in coastal environments. The first part of the semester is spent at Union University facilities and the second part is spent exploring the coastal environments of South Georgia and the Atlantic Coast of Florida. There is an extra fee associated with this class.
557. Ornithology (3) S  
Focuses on the identification and ecology of birds in the eastern United States. Multiple field trips are required, culminating with a 10-day trip to South Georgia and Florida. There is an extra fee associated with this class.

558/558L. Plant Physiology (3) and Plant Physiology Lab (1) S–Even Years  
Study of physiological factors influencing the chemical and structural composition of plant absorption and utilization of water and minerals; photosynthesis, translocation, respiration, nitrogen metabolism; and growth and development. Physiology is the study of how plants function, including resource acquisition, energy creation and use, resource allocation, life cycle, and stress response. Three hours lecture and 3 hours laboratory/week.

559. Dendrology (4) F–Even Years  
This course will focus on the identification and management of trees, focusing on forest ecology and silvicultural practices. The laboratory will include field trips that will focus on tree identification. Three hours lecture and optional 3 hours laboratory/week.

575. Graduate Research (1-6)  
Research experience as part of the completion of the Masters in Conservation Biology. Variable credit to be determined in consultation with faculty mentor.

585. Special Topics in Biology (1-4)  
Group studies which do not appear in the department course offerings. Course content will be determined by need.

598. Graduate Seminar (1) F, S  
Students will develop proficiency in searching biological literature, writing a well-constructed summary of primary literature, making an oral presentation of primary literature and data analysis. Students will improve their critical thinking skills and their ability to evaluate and explain data. Students will also engage in meaningful discussions with other students and Biology Faculty on a number of relevant biological topics. This course may be repeated once.
Available online

Mission
Union University’s Master of Music in Music Technology degree is a 36-credit hour program delivered entirely online and designed to prepare graduates to work in the music profession.

Admission Information

Admissions requirements
The program accepts students on a rolling admissions basis, so a student is able to enter the program at any point during one of the 8-week terms that courses are offered (Fall 1 and 2, Spring 1 and 2, and Summer 1 and 2). A prospective student who has earned a baccalaureate degree from an approved institutionally accredited college or university may be admitted under one of the following classifications.

Regular Admission
- A bachelor’s degree in music, commercial music, worship, jazz studies, or recording industry studies (or equivalent)
- A minimum 3.0 (4.0 scale) cumulative grade point average in undergraduate work
- Three acceptable letters of recommendation
- No GRE or other standardized tests are required.

Provisional Admission
- Students may be admitted on a provisional basis if one or more of the requirements listed above are judged to be marginal. Specific provisions for exiting provisional status will be set in each case by the admissions committee and must be satisfied before proceeding past the first 12 semester hours of course work.

Program Features
Students may select one of the following program emphases:
Live Performance Technology or Studio Recording/Post-Production Technology.

II. Studio Recording/Post-Production Technology—36 hours: MUT 501, 503, 510, 520, 525, 620, 630, 690, 641, 642, 670, and 671.

Graduation Requirements
- Successful completion of 36 credit hours in music technology at the graduate level, maintaining a 3.0 GPA in the program.
- Successful completion of all required courses
- Degree audit verifying the completion of the courses.

Financial Information
Application Fee: $50
General Student Fee: $25/hour
Tuition/semester hour: $590

All financial information is subject to change without notice.

Financial Assistance
Financial aid information for graduate students is available on our website at www.uu.edu/financialaid. Generally, graduate students may be eligible for Federal Direct student loans or private alternative student loans, depending on the program of study and the eligibility of the borrower. Union University is also approved by the Department for Veterans Affairs to offer educational benefits to veterans, reservists, and dependents of veterans who qualify for Veterans Benefits. Any person who qualifies for VA Benefits should check with the Office of Student Financial Planning as soon as possible after acceptance into a graduate program.

Course Offerings in Music Technology (MUT)
All courses offered during Fall 1 and 2, Spring 1 and 2, and Summer 1 and 2

501. Introduction to Music Graduate Study (3)
An orientation and introduction to graduate study in music at Union University, focusing on program technology requirements, current readings and trends in music technology, techniques of scholarly writing, research in music technology and the application of the student’s personal experiences, opportunities, and ambitions as related to their anticipated career and life objectives within the music industry. The course also introduces various types of computer technology and audio hardware and its application to music, MIDI sequencing, digital recording, and hardware associated with recording.

503. History of Music Technology and Industry Applications (3)
An historical overview of the development, progression, and application of music technology from the first days in the recording industry to the present. Additionally, this class provides an introduction to DAW software, music recording concepts and the most current processes of production.

510. Ear Training and Music Theory for Music Technology (3)
Instruction in theory analysis and ear training using a variety of musical styles. Students will be expected to analyze, transcribe and create charts that could be used in live performance or studio recording sessions. The focus will be on ear training analysis and theoretical transcription in order to achieve practical musicianship necessary to operate in professional situations.
520. Music Business Career Essentials (3)
A focus on music technology tools, platforms and services used by the modern music business entrepreneur. Study topics include office technology, copyright/licensing services, royalty collection services, distribution platforms, multi-user project platforms, and the impact, both positive and negative, that technology has had on the music business. Additional focus will be placed on using online tools, social media platforms, promotion, management, and various types of contracts. Students will create a one-sheet, electronic press kit, and personal business plan for careers moving forward.

525. Live Performance and MIDI Programming Technology (3)
This course covers topics related to live performance production and MIDI programming technologies. Students learn to use the most current versions of Logic for programming of high-level mockups for songs in various styles. Ableton Live will be studied for use in live performance and programming, including work with stems and real-time triggering. Students will also create and manipulate a template of sample based virtual instruments using Musical Instrument Digital Interface (MIDI). Additional topics will include the use of midi technology for sound reinforcement and lighting systems.

560. Audio Recording Technology (3)
This course presents DAW technologies including software platforms such as ProTools, Logic, and Ableton. Discussion also includes hardware considerations such as Front of House sound, monitor mix stations, sound system components, analog and digital mixing consoles, and virtual and outboard effects processors. All phases of project completion using audio recording technology are addressed, from initial setup to final mix-down.

560. Music Technology for TV, Gaming and Film (3)
An overview of the technology and techniques used in the creation of music and audio for use in video, film, and TV production. Concepts to be studied include video import to ProTools, synchronization and SMPTE time code, spotting, field audio recording, dialog replacement, Foley, and the use of software editing platform for final mix-down.

561. Venue Software Technology (3)
This course provides “hands-on” experience and training in venue software purchase, download, setup, system design, implementation and mixing for concert venues, tours and church venues. Students will acquire skills in ProPresenter for video projection, ProTools for mixing, Ableton Live for real-time triggering and Visi-Listen for personal in-ear monitor mixing.

632. Venue Hardware Technology (3)
This course provides “hands-on” experience and training in sound system setup, design, implementation and live “front of house” and monitor mixing for concert venues, tours and church venues. Students will apply their live production skills using the components of a typical sound system, including loudspeakers, loudspeaker management, analog and digital mixing consoles, inboard and outboard gear, microphones, monitors, general stage setup, using in-ear monitoring, virtual sound checks and recording live shows/concerts/services for “live” recording projects.

641. Studio Acoustics, Set-up and Signal Flow (3)
An in-depth study of the fundamentals of recording studio acoustics, studio design, signal flow, studio setup, patch bay design, soldering, HDX cards/chassis, session set-up and how all these things relate to any kind of audio recording and producing in function and application. Additional topics include recording console set-up, microphone application/placement, first and second engineer skill sets, signal processing, troubleshooting, and critical listening as well as fundamentals for music production and album creation.

642. Advanced Studio Recording Technology (3)
As the advanced level of Pro Tools training, upper level principles and application of DAW technologies ProTools is addressed, from setup to mix-down, including software updates, use of quick keys, and feature enhancements. Also addressed in this course are concepts related to recording live instruments, MIDI sequencing with virtual and hardware instruments, playlists, loop playback and loop recording. This course also provides advanced techniques for digital editing, including alignment, Meladyne tuning, sound replacement, time stretching, pitch shifting, and elastic-time. There will be continued implementation of MIDI and electronic music sound synthesis including sample creation and usage with virtual instruments. A thorough overview of automation, plug-in usage, and the process of postproduction concepts for mixing will also be included.

660. Digital Music Notation (3)
Students acquire an intermediate skill level in the usage of Finale music notation software. Course activities focus on the role of score preparation, part extraction, workflow, and preparation for publishing. Differing formats will also be explored such as full score, parts, lead sheets, etc.

663. Venue Acoustics and Mixing Concepts (3)
This is a survey course dealing with a wide variety of topics related to live sound and concert production, including venue acoustics, room tuning, mixing concepts for different spaces, and implementation of lighting systems. The course also discusses the components of a typical sound system, using analog and digital consoles, inboard and outboard effects, and the effect of microphones, monitors, and general stage setup on the entire mixing process. This course also touches on working with clients (promoters, stage managers, and musicians on stage) as well as technicians.
670. Mixing Concepts I (3)
Students will learn to create polished industry standard mixes with music content in stereo and 9.1 Dolby surround sound. These mixes will be completed using all available tools to achieve professional sound, a personal sonic identity and by applying all techniques acquired in the music technology program. Students will also learn to employ critical and analytical listening skills in music mixing as well as the ability to compare/contrast the attributes of differing mix processes.

671. Advanced mixing Concepts and Mastering (3)
Students will learn to create polished music content with mastered, album quality mixes in stereo and 9.1 Dolby surround sound using all available tools to achieve professional sound, a personal sonic identity and apply all techniques learned in the music technology program. Students will also learn to employ advanced critical and analytical listening skills in music mixing as well as the ability to compare/contrast the attributes of differing mix processes including the detection of clarity issues. Students will apply their production and mixing skills in a capstone studio mixing and mastering projects.

690. Capstone Project (3)
The capstone project is the culminating experience in the Master of Music degrees with specific emphasis, demonstrating mastery and synthesis of knowledge and skills learned in the program.