The School of Science

Dean: Michael A. Palladino, PhD
Associate Dean: Catherine N. Duckett, PhD
Assistant Dean: John A. Tiedemann, MS

Monmouth University’s School of Science is a community of teacher-scholars actively fostering learning, quantitative reasoning, and scientific inquiry among its majors and among all students. A goal of the School is to lead in the innovative development and delivery of curricula and in providing creative solutions to problems that include significant technical components. Educational programs provide a student-centered learning environment that builds a foundation for lifelong learning, critical thinking, and collaborative, technical problem solving. Faculty scholarship interests include: original basic and applied research in a range of disciplines and scholarly work on science education and pedagogy. Undergraduate and graduate students are encouraged to participate in student-faculty collaborative research projects leading to the acquisition and dissemination of new knowledge in the sciences.

The School of Science offers undergraduate degree programs in Biology, Chemistry, Clinical Laboratory Science, Computer Science, Marine and Environmental Biology and Policy, Mathematics, Medical Technology, and Software Engineering, as well as minors in Biology, Chemistry, Computer Science, Information Technology, Mathematics, and Physics, and concentrations in Molecular Cell Physiology, Advanced Chemistry, Biochemistry, Chemical Physics, Cytotechnology, and Medical Laboratory Science.

The School of Science also offers master’s degrees in Computer Science and Software Engineering. The undergraduate BSSE program in Software Engineering is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone: (410) 347-7700. The Chemistry, Medical Technology, and Physics Department is approved by the American Chemical Society (ACS). All qualified advanced chemistry, biochemistry, and chemical physics degree recipients are eligible to receive ACS certification of their degrees. The degrees in Clinical Laboratory Science and Medical Technology are accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). All programs of study are directed toward preparing students for working and living in a multicultural, technologically complex, global environment.

Studies in the School of Science provide students with a solid background in the technical
aspects of their chosen scientific or engineering field, sufficient to prepare them for further study in graduate or professional programs, or to compete for access to employment opportunities in industry or education. Core courses for the non-major stress the nature of the scientific enterprise and the benefits and risks that scientific advances present to society rather than the digestion of large doses of content from the discipline. Both major and non-major courses emphasize the importance of critical thinking and cooperative learning, clarify working to the scientific method in posing and answering questions concerning the natural world, and explore the nature of human problems for which technology may provide solutions.

**RAPID RESPONSE INSTITUTE**

**Barbara T. Reagor, PhD.** Director, Rapid Response Institute. A Bellcore Fellow and former Telcordia VP of Homeland Security, Dr. Reagor worked has for the past thirty-four years in the fields of National Security Emergency Preparedness, Disaster Prevention and Recovery, Crisis Management, Chemical Contamination, and Network Risk Assessment associated with telecommunications and information technology systems.

**William Tepfenhart, PhD.** Chief Technology Officer for the Rapid Response Institute and Associate Professor in the Department of Computer Science and Software Engineering. Dr. Tepfenhart’s experience ranges across a broad spectrum of activities (government, AT&T, and Monmouth University). He has performed in the role of instructor, researcher, software developer, and author. He is trained as a physicist, and his areas of expertise include object-oriented software development, artificial intelligence, and software engineering.

**James Hammill**, Research Scientist for the Rapid Response Institute and a Certified Disaster Recovery Planner. He was co-chair for the Response and Recovery Chapter with Dr. Reagor for the MIPT publication “Project First Responder.” He has also held positions at FEMA and AT&T.

**Robert M. Kelly Jr.,** MS EE Stanford University. Adjunct Professor, Monmouth University. Synthesis of emerging and existing technologies into useful applications; RFID, large scale systems architecture and integration; work in all phases of technology development from the lab to customer support; operations, administration, and maintenance (OA&M) of complex computer/communications environments; customer/client and vendor relationship management, especially outsourcing; and processes for quality technology realization and support.

The Rapid Response Institute (RRI) provides research opportunities in support of Homeland Security and Homeland Defense for School of Science faculty and adjuncts as well as high school teachers and students, undergraduate and graduate students, and contracted or visiting scientists. This software engineering-based institute aims to develop decision-enhancing aids that enable early and enhanced threat identification and appropriate response in the support of the chemical, biological, radiological, nuclear, and explosive events. These same techniques can be applicable to homeland security/counterterrorism, natural disaster, environmental crisis, and pandemic scenarios, and this duality provides an open, accessible, and reasonably inexpensive test bed for the development of prototypes being designed to meet both domestic and military needs.

**URBAN COAST INSTITUTE**

**Anthony B. MacDonald,** Director. Mr. MacDonald brings over twenty-five years of executive and policy experience in coastal and ocean law and policy at the local, state, and federal level to the UCI.

**James Nickels,** Marine Scientist, Urban Coast Institute. Mr. Nickels has worked for over twenty-five years on marine research, monitoring, surveying, and field operations in both the public and private sectors.

The Urban Coast Institute (UCI) serves the public interest as a forum for research, education, and collaboration that fosters the application of the best available science and policy to support healthy and productive coastal ecosystems and a sustainable and economically vibrant future for coastal communities. The UCI efforts focus on the following program areas:

- Coastal Law and Policy
- Coastal Watershed Management
- Coastal Communities and Economies
- Regional Ecosystem Management
BIOLOGY
Ivan Gepner, Chair, Department of Biology

Pedram Patrick Daneshgar, Assistant Professor.
BA, University of Delaware; MS, Saint Joseph’s University; PhD, University of Florida.


Dana J. Ehret, Instructor. PhD, University of Florida. Specializes in vertebrate paleontology, herpetology, and conservation biology. Current interests include the evolution of white and mako sharks, body size of extinct megatoothed sharks, and phylogeny and conservation biology of emydid turtles.

Ivan A. Gepner, Associate Professor and Chair. PhD, Princeton University. Specializes in genetics and developmental biology. Current interests include computer applications in biology, especially computer modeling and simulation of natural phenomena.

Ursula A. Howson, Assistant Professor. PhD, University of Delaware. Specializes in marine ecology, ichthyology, and invertebrate zoology. Current research includes physiological ecology and behavior of larval and juvenile fishes, and image-based analyses of ontogenetic changes in their morphology.

Kathryn A. Lionetti, Associate Professor. PhD, State University of New York at Stony Brook. Specializes in microbiology and molecular biology. Current interests include recombinant DNA technology, apoptosis, and applications of molecular biology in clinical diagnostic procedures and emerging viral diseases.

Dorothy Lobo, Associate Professor. PhD, The Catholic University of America. Specializes in cell and molecular biology, and signal transduction pathways. Current research includes the regulation of stress signaling pathways during cell proliferation and programmed cell death.

James P. Mack, Professor. EdD, Teachers College, Columbia University. Specializes in anatomy and physiology. Current research includes: antimicrobial effects of plant essential oils on bacteria including MRSA and MSSA and fungi and elucidating the comprehensive chemical mechanism for catalase (kinetic deviations and conformer multiplicity).

Michael A. Palladino, Dean, School of Science and Associate Professor. PhD, University of Virginia. Specializes in male reproductive biology and cell and molecular biology. Current research includes antimicrobial properties of male reproductive organs, and cellular and molecular responses to ischemia and hypoxia in the mammalian testis.

Karen Pesce, Lecturer. PhD, Rutgers University. Specializes in environmental microbiology. Current research interests include microbial community analysis and characterization of novel biodegradative genes from polluted environments.

Dennis E. Rhoads, Professor. PhD, University of Cincinnati. Specializes in biochemistry and neuroscience. Current research on neurobiology of alcohol and drug abuse.

John A. Tiedemann, Assistant Dean of the School of Science and Director of the Marine and Environmental Biology and Policy Program. MS, Florida Institute of Technology. Specializes in marine ecology, coastal zone management, environmental science, and marine and environmental education. Current applied research involves watershed management strategies and best management practices for coastal nonpoint source pollution.

The Biology curriculum is designed to give students a basic diversified background in the life sciences and prepare them for graduate work, professional school (medicine, dentistry, podiatry, chiropractic, etc.), laboratory work in government and industry, and careers in teaching.

National Biological Honor Society: Beta Beta Beta, Chi Eta Chapter, requires completion of at least ten credits of biology and a 3.2 or better GPA in biology courses.

Department Honors can be earned in Biology based on the following criteria being met:
- Achieving a 3.3 or better overall GPA with a 3.5 or better GPA in biology courses;
- Completing two additional courses at the 300 or 400 level;
- Completing six credits of faculty-directed research and presenting a research thesis.
BACHELOR OF SCIENCE WITH A MAJOR IN BIOLOGY

Please refer to the following curriculum charts for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”

- Bachelor of Science in Biology
- Bachelor of Science in Biology and Education with Endorsement in Elementary Education
- Bachelor of Science in Biology and Education with Endorsement in Secondary Education in Biology

Additional endorsements are available. Please refer to the School of Education or the curriculum charts located in Appendix “B.”

BACHELOR OF SCIENCE WITH A MAJOR IN BIOLOGY WITH A CONCENTRATION IN MOLECULAR CELL PHYSIOLOGY

Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”

- Bachelor of Science in Biology with a Concentration in Molecular Cell Physiology

BACHELOR OF SCIENCE IN MARINE AND ENVIRONMENTAL BIOLOGY AND POLICY

Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”

- Bachelor of Science in Marine and Environmental Biology and Policy

BIOLOGY DEPARTMENT MINOR

Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”

- Minor in Biology

CHEMISTRY, MEDICAL TECHNOLOGY, AND PHYSICS

Gregory Moehring, Chair, Department of Chemistry, Medical Technology, and Physics


Bradley J. Ingebrethsen, Lecturer. PhD, Clarkson University. Physical chemistry. Mass transport in aerosol systems, the fate of aerosols in the environment and in the respiratory tract, and the physical chemistry of cigarette smoke.

Robin R. Kucharczyk, Lecturer. PhD, Yale University. Inorganic chemistry. Organometallic chemistry of molybdenum and approaches to teaching introductory chemistry.

Massimilliano Lamberto, Associate Professor. PhD, University of Southampton (UK). Organic chemistry. Small molecule synthesis for the inhibition of telomerase by G-quadruplex DNA stabilization; synthesis of novel chromophoric systems for dye-sensitized solar cells and sensor applications; synthetic methodology.

J. Luo, Lecturer. PhD, University of Pittsburgh. Analytical chemistry, Nanotechnology sensors for the real time monitoring of analytes.

S. Mallikarjun, Professor. PhD, University of London, UK. Primary field is liquid state physics. Current interests include study of crystals and international education.

Gregory Moehring, Associate Professor and Chair. PhD, Purdue University. Inorganic Chemistry. Synthesis and NMR characterizations of transition metal polyhydride compounds. Transformations of small molecules at transition metal polyhydride compounds.

Datta V. Naik, Vice Provost, Dean of the Graduate School and Professor. PhD, University of Notre Dame. Analytical-inorganic chemistry. Research interests are detection and control of process gases, air quality, and spectroscopic methods of analysis.

Ellen Rubinstein, Lecturer. PhD, University of Notre Dame. Polymer chemistry, water analysis related coastal lake eutrophication.


Danuta Szwajkajzer, Lecturer. PhD, Rutgers University. Biophysical chemistry. Chemistry of proteins and nucleic acids, thermodynamics of
drugs binding to DNA, mechanisms of recognition for biomolecules, and studies of structure and thermodynamic changes of nucleic acids oligomers.

**Tsanangurayi Tongesayi**, Associate Professor. PhD, West Virginia University. Analytical chemistry. Speciation, geochemical cycling, and bioavailability of heavy metals in the environment, technologies and methods for the removal of toxic heavy metals and their compounds from drinking water, and analytical method development.

**Xudong Yuan**, Scholar in Residence. PhD, University of Georgia College of Pharmacy. Medicinal chemistry. Development of new delivery methods for API’s and/or genes.

The chemistry curricula provide firm foundations in the traditional subject areas of chemistry. Completion of one of the programs is excellent preparation for further professional study in chemistry, in related sciences, medicine and other health professions, or in education. Careers in chemical business, environmental protection, forensics, government, industrial hygiene, information science, patent law, science writing, education, and toxicology are open to those whose initial field of study is chemistry.

The Bachelor of Science in Chemistry provides a core curriculum of all of the traditional subject areas of chemistry while allowing sufficient flexibility to combine it with a second major, a minor, or elective biology courses for pre-medical studies within the total of 128 credits required for graduation. Examples of this are the Chemistry and Education programs. Completion of that combination makes one eligible to apply for Elementary or Secondary Education endorsement as a chemistry teacher. Completion of two additional courses makes one eligible for the teacher of physical science certification.

The Advanced Chemistry concentration is an extended curriculum that provides a career-level foundation in all of the traditional subject areas of chemistry. Students planning to seek employment in chemistry-related positions or to pursue graduate study in chemistry should follow this concentration. Completion of this program is also excellent preparation for health profession careers. Students who complete this program will have their degrees certified by the American Chemical Society.

The Biochemistry concentration provides an introduction to the traditional subject areas of chemistry and biology and explores their relationship in the field of biochemistry. Biochemistry is a rapidly growing field that appeals to students interested in both chemistry and biology. Students planning to seek employment in biochemistry or to pursue graduate study in biochemistry or any of the health-related professions should follow this concentration. American Chemical Society certification may also be achieved in this concentration.

The concentration in Chemical Physics will prepare students interested in graduate work in areas such as nanotechnology and materials science, which are the interface of chemistry and physics.

**Departmental Honors** can be earned in Chemistry based on the following criteria being met:
- An overall GPA of 3.3 or higher;
- A major GPA of 3.5 or higher;
- At least three credits of CE350 and/or CE499;
- Completion of: CE371 and CE371L;
- Completion of a thesis with a grade of “B” or higher;
- Public presentation of research.

**BACHELOR OF SCIENCE WITH A MAJOR IN CHEMISTRY**

Please refer to the following curriculum charts for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”
- Bachelor of Science in Chemistry
- Bachelor of Science in Chemistry and Education with Endorsement in Secondary Education in Chemistry
- Bachelor of Science in Chemistry and Education with Endorsement in Secondary Education and Physical Science

Additional endorsements are available. Please refer to the School of Education or the curriculum charts located in Appendix “B.”
BACHELOR OF SCIENCE WITH A MAJOR IN CHEMISTRY WITH A CONCENTRATION IN ADVANCED CHEMISTRY (AMERICAN CHEMICAL SOCIETY-APPROVED PROGRAM)
Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”
- Bachelor of Science in Chemistry with a Concentration in Advanced Chemistry (ACS Approved)

BACHELOR OF SCIENCE WITH A MAJOR IN CHEMISTRY WITH A CONCENTRATION IN BIOCHEMISTRY
Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”
- Bachelor of Science in Chemistry with a Concentration in Biochemistry

BACHELOR OF SCIENCE WITH A MAJOR IN CHEMISTRY WITH A CONCENTRATION IN CHEMICAL PHYSICS
Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”
- Bachelor of Science in Chemistry with a Concentration in Chemical Physics

CHEMISTRY DEPARTMENT MINOR
Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”
- Minor in Chemistry

CLINICAL LABORATORY SCIENCES and MEDICAL TECHNOLOGY
Gregory Moehring, Chair, Department of Chemistry, Medical Technology, and Physics
William Schreiber, Coordinator, Clinical Laboratory Sciences and Medical Technology Programs

The Clinical Laboratory Sciences program is offered in collaboration with the University of Medicine and Dentistry of New Jersey-School of Health-Related Professions (UMDNJ-SHRP). The curriculum is composed of three years of a pre-professional component and fifteen months of a professional component. The pre-professional component is conducted at Monmouth University. The professional component is conducted by UMDNJ-SHRP at the Newark campus and at affiliated clinical/research facilities in a four-semester (fifteen-month) sequence beginning the June following completion of the pre-professional component. Concentrations are available in cytotechnology and medical laboratory science. Monmouth University and the UMDNJ-SHRP jointly confer the Bachelor of Science degree upon successful completion of the professional component.

BACHELOR OF SCIENCE WITH A MAJOR IN CLINICAL LABORATORY SCIENCES WITH CONCENTRATIONS IN CYTOTECHNOLOGY AND MEDICAL LABORATORY SCIENCE
Please refer to the following curriculum charts for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”
- Bachelor of Science in Clinical Laboratory Science with a Concentration in Cytotechnology
- Bachelor of Science in Clinical Laboratory Science with a Concentration in Medical Laboratory Science

The Medical Technology curriculum is designed to give a broad knowledge of the life sciences and to provide specialized experience in performing and understanding numerous standardized and specialized laboratory procedures. The curriculum requires completion of ninety-six credits of collegiate work prescribed by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) and is followed by a twelve-month training period at one of the following hospitals:

Monmouth Medical Center
Long Branch, NJ 07740
John A. Mihok, Program Director

Jersey Shore University Medical Center
Neptune, NJ 07753
Perla L. Simmons, Program Director

Monmouth University confers the Bachelor of Science degree upon successful completion of the hospital program.
Please refer to the following curriculum charts located in Appendix “B” for program requirements:

- Bachelor of Science in Medical Technology (for Jersey Shore University Medical Center)
- Bachelor of Science in Medical Technology (for Monmouth Medical Center)

**PHYSICS**

Physics faculty members offer a curriculum leading to a minor in physics, which may be combined with any major. The minor in physics can be combined with a major in chemistry and education to prepare for the Teacher of Physical Science Certification. A minor in physics also complements the interests of students majoring in mathematics, software engineering, and a variety of other fields. The physics faculty also support various undergraduate programs by offering specific physics courses required in other majors and courses designed to meet the general education natural sciences requirements.

**PHYSICS MINOR**

Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”

- Minor in Physics

**COMPUTER SCIENCE AND SOFTWARE ENGINEERING**

Jiacun Wang, Chair, Department of Computer Science and Software Engineering
Joseph Chung, UNIX Administrator and Teacher

Michiko Kosaka, Associate Professor. PhD, New York University. Interests include natural language processing and artificial intelligence.

Francis C. Lutz, Professor. PhD, New York University. Interests include environmental engineering and curricular innovation. Active in educational issues through the American Society for Engineering Education and the National Society of Professional Engineers.

James McDonald, Associate Professor. PhD, New York University. Interests include software verification and validation, project management, and empirical software engineering.

Allen Milewski, Associate Professor. PhD, Brown University. Areas of interest include human-computer interactions, contextual communication and awareness, and global software development.

Mohammed S. Obaidat, Professor. PhD, Ohio State University. Interests include wireless communications and networks, telecommunications and networking systems, security of network, information, and computer systems, security of e-based systems, performance evaluation of computer systems, algorithms, and networks, modeling and simulation, high performance and parallel computing/computers, applied neural networks and pattern recognition, adaptive learning, and speech processing.

Daniela Rosca, Associate Professor. PhD, Old Dominion University. Interests include requirements elicitation, analysis and specification, and methodologies for the development and use of business rules.

Richard Scherl, Associate Professor. PhD, University of Illinois and University of Chicago. Interests include artificial intelligence (especially knowledge representation, automated reasoning, and natural language processing), cognitive science, and databases.

William Tepfenhart, Associate Professor. PhD, University of Texas. Interests include artificial intelligence, software architecture, and software design.

Jack M. Van Arsdale, Associate Professor. MSEE, Polytechnic Institute of New York. Interests include digital and microcomputer-based design, digital phase-lock loop frequency synthesis, and digital synthesis.

Jiacun Wang, Associate Professor and Chair. PhD, Nanjing University of Science and Technology, China. Interests include software architecture, Petri nets, real-time systems, discrete event systems, telecommunications, and networking.

Cui Yu, Associate Professor. PhD, National University of Singapore. Interests include database management systems, spatial databases, and information storage and retrieval.

**BACHELOR OF SCIENCE WITH A MAJOR IN COMPUTER SCIENCE**

The Computer Science curriculum provides a solid foundation in the computing sciences, preparing students for employment in industry or for graduate school. Software design and development is emphasized along with foundational computing concepts.
The higher-level courses enable students to explore a variety of topics, such as databases, networks, artificial intelligence, scripting languages, game programming, UNIX administration, and computer security. The Advanced Computing Concentration is recommended especially for students who plan to go to graduate school in computer science or who plan to specialize in scientific computing. The educational objectives of the Advanced Computing Concentration are to enable graduates, within a few years after graduation to:

- Work as effective team members or team leaders in the development of computer and software systems covering a wide range of scientific and business applications.
- Enter professional careers in positions including computer programmer, computer systems analyst, network administrator, computer systems programmer, software systems designer, database systems manager, and software applications developer.
- Undertake graduate studies and develop the knowledge and expertise to complete advanced studies or do research in computer science, engineering, and other scientific fields.
- Work in teams, communicate effectively, and meet the social and ethical responsibilities of their profession.
- Become productive professionals in their fields of activity, concern, or function.
- Adjust to new technologies and methodologies with the skills required to react to a changing world.

Other students may take the Applied Computing Concentration which gives students the flexibility to take a minor in a field outside of science and mathematics.

Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix "B."

- Minor in Computer Science

CERTIFICATE IN NETWORK TECHNOLOGIES AND APPLICATIONS

This fifteen-credit certificate provides professional training in network technologies. Students in the certificate program will enhance their networking knowledge, gain focused professional expertise toward careers, and increase their employability. The certificate would focus on practical needs of students in the Applied Computer Science track as well as others who are interested in careers that require expertise in practical network technologies and skills.

Please refer to the following curriculum charts for program requirements. All curriculum charts are detailed and displayed in Appendix "B."

- Certificate in Network Technologies and Applications

BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING

The undergraduate Software Engineering curriculum, which is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone: (410) 347-7700, is designed to give students a broad background in both computer and engineering science with a heavy emphasis on those aspects of software engineering that will enable graduates to efficiently participate in the design, development, and deployment of large software systems. Because of the sequential nature of the courses and the number of requirements for engineering majors, careful planning is necessary to complete the curriculum in four years.

The educational objectives of the BS in Software Engineering program are to prepare software engineering graduates to do the following things within the first few years after graduation from the program:

- Find employment in organizations that develop or use software and/or enter graduate school;
- Participate in teams that are responsible for the specification, design, construction, testing, deployment, maintenance, or use of software systems;
• Develop experience in additional areas of professional specialty which, when combined with their undergraduate education, will continue the path toward lifelong learning;
• Use their engineering, communications, interpersonal, and business skills to further their position in a business, government, or academic environment;
• Critically assess their engineering capabilities and acquire the additional knowledge and skills they need to maintain currency within their evolving work environment;
• Assist their employers’ organizations in achieving their business goals.

Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”

SOFTWARE ENGINEERING DEPARTMENT
MINORS
Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”

• Bachelor of Science in Software Engineering

CERTIFICATE IN INFORMATION TECHNOLOGY
Please refer to the curriculum charts for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”

• Certificate in Information Technology

MATHEMATICS

David C. Marshall, Chair, Department of Mathematics

Richard Bastian, Lecturer. PhD, Johns Hopkins University. Interests include applied mathematics, mathematics and culture, and philosophy of mathematics.

Barbara Lynn Bodner, Professor. EdD, Rutgers University. Interests include heuristic process use in problem-solving, integration of computer technology, and applications into the curriculum, as well as the study of mathematics from historical and artistic perspectives.

Suneal Chaudhary, Assistant Professor. PhD, UCLA. Interests include mathematical and computational finance, economics, and Monte Carlo methods.

Micah Chrisman, Assistant Professor. PhD, University of Hawaii. Interests include algebraic topology, low-dimensional topology, and knot theory.

Joseph Coyle, Associate Professor. PhD, University of Delaware. Interests include numerical analysis and inverse problems.

Bonnie Gold, Professor. PhD, Cornell University. Interests include philosophy of mathematics and innovation in undergraduate mathematics education.

Betty Liu, Professor. PhD, University of Maryland. Interests include numerical solution of differential equations and mathematical modeling.

David C. Marshall, Associate Professor and Chair, PhD, University of Arizona. Interests include number theory, commutative algebra, and the theory of bilinear and quadratic forms.

Susan H. Marshall, Associate Professor. PhD, University of Arizona. Interests include number theory, arithmetic geometry, and the learning and teaching of proof.

Emanuel Palsu-Andriescu, Lecturer. PhD, University of Rochester. Interests include microlocal analysis, Colombeau generalized functions, and Fourier integral operators.

Wai K. Pang, Assistant Professor. PhD, Texas Tech University. Interests include functional data analysis, image analysis, and multi-sample problems in Hilbert spaces.

Bruce Ralli, Lecturer. MS, Georgian Court University. Interests include teaching mathematics and technology in the classroom.

G. Boyd Swartz, Professor. PhD, New York University. Interests include computer modeling, object-oriented programming, and integration of computer technology into the curriculum.

The Bachelor of Science curriculum in mathematics is designed to provide an introduction to classical and modern mathematics and to provide a foundation for graduate study or careers in various areas of application.

BACHELOR OF SCIENCE WITH A MAJOR IN MATHEMATICS

Please refer to the following curriculum charts for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”
- Bachelor of Science in Mathematics
- Bachelor of Science in Mathematics with a Concentration in Statistics
- Bachelor of Science in Mathematics and Education with Endorsement in Elementary Education
- Bachelor of Science in Mathematics and Education with Endorsement in Secondary Education in Mathematics

Additional endorsements are available. Please refer to the School of Education or the curriculum charts located in Appendix “B.”

MATHEMATICS DEPARTMENT MINOR
Please refer to the following curriculum chart for program requirements. All curriculum charts are detailed and displayed in Appendix “B.”

- Minor in Mathematics
- Minor in Statistics