

# COLLEGE OF SCIENCE AND MATHEMATICS

**Dean:** Robert S. Prezant, Ph.D.

**Associate Dean for Administrative Affairs:** Jinan Jaber-Linsalata, Ph.D.

**Associate Dean for Academic Affairs:** Lynn Schneemeyer, Ph.D.

Programs within the College of Science and Mathematics (CSAM) provide a strong and deep foundation for careers in industry, government, academia, medicine, dentistry and other health professions, as well as for post-baccalaureate studies in graduate or professional schools. Programs leading to teacher certification are available in various fields within science and mathematics.

Under the direction of expert and dedicated faculty mentors, students have access to unusually extensive facilities and state-of-the-art equipment including scanning transmission electron and atomic force microscopes, cell culture laboratories, animal facilities, greenhouses, scintillation counters, Fourier transform nuclear magnetic resonance spectrometers, gas chromatograph/mass spectrometers and X-ray diffraction spectrometers. Undergraduate research programs, including our Science Honors Innovation Program, and externships provide students with numerous opportunities to “do science”.

Since scientific computing has unique requirements, the College supports several of its own Advanced Computing Clusters. Through networking, students in all the College of Science and Mathematics departments have access to national and international computer networks and bulletin boards. In addition our in-house Career Services Office and Academic Advising Office lends important support to our students as they move through their educational programs and into the post-graduate world.

The New Jersey School of Conservation (SOC), located on 240 acres of state forest in northwestern New Jersey, is a part of CSAM. The SOC is the oldest and largest residential environmental field center operated by a university in the world. Faculty at SOC and on-campus work together on a number of initiatives to use the SOC as an environmental laboratory with research being pursued on lake systems, bear and bobcat populations, and habitat connectivity. CSAM is also home to the Passaic River Institute, the PSEG Institute for Sustainability Studies, the Bristol-Myers Squibb Science Teaching and Learning Center, and is also a member of the New Jersey Sea Grant Consortium with access to marine laboratory facilities in Sandy Hook, NJ.

A number of programs leading to degrees are administered in the College including:

- Biology,
- Biochemistry,
- Chemistry,
- Computer Science,
- Earth and Environmental Science
- Geography,
- Information Technology,
- Marine Biology and Coastal Science,
- Mathematics,
- Molecular Biology,
- Physics and
- Science Informatics.

In addition, the College houses the L.S. Stokes Alliance for Minority Participations in the Sciences (NSF funded) and the Health Careers Program, both designed to increase educational and career opportunities for the groups currently underrepresented in the sciences.

For pre-professional students, there are seven-year programs offered jointly by Montclair State University and the Rutgers School of Medicine, leading to the BS degree at Montclair State and either the Doctor of Medicine or the Doctor of Dental Medicine degree at Rutgers and a D.O.M. at The New York College of Osteopathic Medicine at New York Institute of Technology. CSAM also offers a 7 year combined B.S./Pharm.D. program with the Ernest Mario School of Pharmacy at Rutgers University (New Brunswick) and a new BS/Doctor of Optometry with the SUNY College of Optometry. For more information, including programs leading to careers in Physical Therapy, Osteopathic Medicine and more, visit the Other Programs section of the catalog website.

## Departments and Programs

- Biology (<http://catalog.montclair.edu/colleges/science-mathematics/biology>)
- Chemistry and Biochemistry (<http://catalog.montclair.edu/colleges/science-mathematics/chemistry-biochemistry>)
- Computer Science (<http://catalog.montclair.edu/colleges/science-mathematics/computer-science>)
- Earth and Environmental Studies (<http://catalog.montclair.edu/colleges/science-mathematics/earth-environmental-studies>)
- Marine Biology and Coastal Sciences Program (<http://catalog.montclair.edu/colleges/science-mathematics/marine-biology-coastal-science>)
- Mathematical Sciences (<http://catalog.montclair.edu/colleges/science-mathematics/mathematical-sciences>)
- Office of the Dean (<http://catalog.montclair.edu/colleges/science-mathematics/office-dean>)

## Biology Undergraduate

- Biology Major (B.S.) (<http://catalog.montclair.edu/programs/biology-bs>)
- Biology Major (B.S.) (Combined B.S./M.A.T. with Teacher Certification in Biological Science (Preschool-Grade 12) and Teacher of Students with Disabilities) (<http://catalog.montclair.edu/programs/teacher-certification-preschool-grade-12-combined-bs-mat>)
- Biology Major, Environmental Science/Biology Concentration (B.S.) (<http://catalog.montclair.edu/programs/environmental-science-biology-concentration-bs>)
- Biology Minor (<http://catalog.montclair.edu/programs/biology-minor>)
- Biology with Teacher Certification in Biological Science (Preschool-Grade 12) (B.S.) (<http://catalog.montclair.edu/programs/teacher-certification-preschool-grade-12-bs>)
- Molecular Biology Major (B.S.) (<http://catalog.montclair.edu/programs/molecular-biology-bs>)

## Graduate

- Biological Science, Instructional Certification: Teacher Certification in Biological Science - Preschool through Grade 12 (<http://catalog.montclair.edu/programs/teacher-certification-biological-science-preschool-grade-12-graduate>)
- Biology (M.S.) (<http://catalog.montclair.edu/programs/biology-ms>)

- Biology, Ecology & Evolution Concentration (M.S.) (<http://catalog.montclair.edu/programs/biology-ecology-evolution-concentration-ms>)
- Biology, Pedagogy Concentration (M.S.) (<http://catalog.montclair.edu/programs/biology-pedagogy-concentration-ms>)
- Biology, Physiology Concentration (M.S.) (<http://catalog.montclair.edu/programs/biology-physiology-concentration-ms>)
- Molecular Biology (M.S.) (<http://catalog.montclair.edu/programs/molecular-biology-ms>)
- Molecular Biology Certificate (<http://catalog.montclair.edu/programs/molecular-biology-certificate>)

## Chemistry and Biochemistry

### Undergraduate

- Biochemistry Major (B.S.) (<http://catalog.montclair.edu/programs/biochemistry-bs>)
- Chemistry Major (B.S.) (<http://catalog.montclair.edu/programs/chemistry-bs>)
- Chemistry Major (B.S.) (Combined B.S./M.A.T. with Teacher Certification in Chemistry (Preschool-Grade 12) and Teacher of Students with Disabilities) (<http://catalog.montclair.edu/programs/teacher-certification-chemistry-preschool-grade-12-students-disabilities-combined-bs-mat>)
- Chemistry Major (B.S.) (Combined B.S./M.A.T. with Teacher Certification in Physical Science (Preschool-Grade 12) and Teacher of Students with Disabilities) (<http://catalog.montclair.edu/programs/teacher-certification-physical-science-preschool-grade-12-students-disabilities-combined-bs-mat>)
- Chemistry Major (B.S.) (Combined B.S./M.S.) (<http://catalog.montclair.edu/programs/chemistry-bs-ms>)
- Chemistry Major with Teacher Certification in Chemistry (Preschool-Grade 12) (B.S.) (<http://catalog.montclair.edu/programs/teacher-certification-chemistry-preschool-grade-12-bs>)
- Chemistry Major with Teacher Certification in Physical Science (Preschool-Grade 12) (B.S.) (<http://catalog.montclair.edu/programs/teacher-certification-physical-science-preschool-grade-12-bs>)
- Chemistry Minor (<http://catalog.montclair.edu/programs/chemistry-minor>)

### Graduate

- Chemistry (M.S.) (<http://catalog.montclair.edu/programs/chemistry-ms>)
- Chemistry (M.S.) (Combined B.S./M.S.) (<http://catalog.montclair.edu/programs/chemistry-combined-bs-ms>)
- Chemistry, Biochemistry Concentration (M.S.) (<http://catalog.montclair.edu/programs/biochemistry-concentration-chemistry-ms>)
- Chemistry, Instructional Certification: Teacher Certification in Chemistry (Preschool-Grade 12) (<http://catalog.montclair.edu/programs/teacher-certification-chemistry-preschool-grade-12-graduate>)
- Pharmaceutical Biochemistry (M.S.) (<http://catalog.montclair.edu/programs/pharmaceutical-biochemistry-ms>)

## Computer Science

### Undergraduate

- Computer Science Major (B.S.) (<http://catalog.montclair.edu/programs/computer-science-bs>)
- Computer Science Major (B.S.) (Combined B.S./M.S.) (<http://catalog.montclair.edu/programs/computer-science-combined-bs-ms>)
- Computer Science Minor (<http://catalog.montclair.edu/programs/computer-science-minor>)
- Information Technology Major (B.S.) (<http://catalog.montclair.edu/programs/information-technology-bs>)
- Science Informatics Major (B.S.) (<http://catalog.montclair.edu/programs/science-informatics-bs>)

### Graduate

- Computer Science (M.S.) (<http://catalog.montclair.edu/programs/computer-science-ms>)
- Computer Science (M.S.) (Combined B.S./M.S.) (<http://catalog.montclair.edu/programs/computer-science-ms-combined-bs-ms>)
- Information Technology (M.S.) (<http://catalog.montclair.edu/programs/information-technology-ms>)
- Information Technology, Applied Information Technology Concentration (M.S.) (<http://catalog.montclair.edu/programs/information-technology-applied-information-technology-concentration-ms>)

## Earth and Environmental Studies

### Undergraduate

- Earth and Environmental Science Major (B.S.) (<http://catalog.montclair.edu/programs/geoscience-bs>)
- Earth and Environmental Science Major (B.S.) (Combined B.S./M.A.T. with Teacher Certification in Earth Science (Preschool-Grade 12) and Teacher of Students with Disabilities) (<http://catalog.montclair.edu/programs/geoscience-bs-teacher-certification-earth-science-preschool-grade-12-students-disabilities-combined-bs-mat>)
- Earth and Environmental Science Major with Teacher Certification in Earth Science (Preschool-Grade 12) (B.S.) (<http://catalog.montclair.edu/programs/geoscience-teacher-certification-earth-science-preschool-grade-12-bs>)
- Earth and Environmental Science Minor (<http://catalog.montclair.edu/programs/geoscience-minor>)
- Geographic Information Science Minor (<http://catalog.montclair.edu/programs/geographic-information-science-minor>)
- Geography Major (B.A.) (<http://catalog.montclair.edu/programs/geography-ba>)
- Geography Major with Teacher Certification in Social Studies (Preschool-Grade 12) (B.A.) (<http://catalog.montclair.edu/programs/geography-teacher-certification-social-studies-preschool-grade-12-ba>)
- Geography Major, Environmental Studies Concentration (B.A.) (<http://catalog.montclair.edu/programs/geography-environmental-studies-concentration-ba>)
- Geography Major, Urban Studies Concentration (B.A.) (<http://catalog.montclair.edu/programs/geography-urban-studies-concentration-ba>)
- Sustainability Science Major (B.S.) (<http://catalog.montclair.edu/programs/sustainability-science-bs>)

- Sustainability Science Major (B.S.) (Combined B.S./M.S.) (<http://catalog.montclair.edu/programs/sustainability-science-combined-bs-ms>)
- Urban Studies Minor (<http://catalog.montclair.edu/programs/urban-studies-minor>)

## Graduate

- Earth and Environmental Science (M.S.) (<http://catalog.montclair.edu/programs/earth-environmental-science-ms>)
- Earth Science, Instructional Certification: Teacher Certification in Earth Science - Preschool through Grade 12 (<http://catalog.montclair.edu/programs/teacher-certification-earth-science-preschool-grade-12-graduate>)
- Environmental Forensics Certificate Program (<http://catalog.montclair.edu/programs/environmental-forensics-certificate>)
- Environmental Management (Ph.D.) (<http://catalog.montclair.edu/programs/environmental-management-phd>)
- Geographic Information Science Certificate Program (<http://catalog.montclair.edu/programs/geographic-information-science-certificate-graduate>)
- Sustainability Science (M.S.) (<http://catalog.montclair.edu/programs/sustainability-science-ms>)
- Sustainability Science (M.S.) (Combined B.S./M.S.) (<http://catalog.montclair.edu/programs/sustainability-science-applied-sustainability-concentration-ms>)
- Sustainability Science, Applied Sustainability Concentration (M.S.) (<http://catalog.montclair.edu/programs/water-resource-management-certificate-graduate>)
- Water Resource Management Certificate Program (<http://catalog.montclair.edu/programs/water-resource-management-cert-program>)

## Marine Biology and Coastal Sciences Program

### Undergraduate

- Marine Biology and Coastal Sciences Major (B.S.) (<http://catalog.montclair.edu/programs/marine-biology-bs>)
- Marine Biology and Coastal Sciences Major (B.S.) (Combined B.S./M.S.) (<http://catalog.montclair.edu/programs/marine-biology-bs-combined-bs-ms>)

### Graduate

- Marine Biology and Coastal Sciences (M.S.) (<http://catalog.montclair.edu/programs/marine-biology-ms>)
- Marine Biology and Coastal Sciences (M.S.) (Combined B.S./M.S.) (<http://catalog.montclair.edu/programs/marine-biology-ms-combined-bs-ms>)

## Mathematical Sciences

### Undergraduate

- Mathematics Major (B.S.) (<http://catalog.montclair.edu/programs/mathematics-bs>)
- Mathematics Major (B.S.) (Combined B.S./M.A.T. with Teacher Certification in Mathematics (Preschool-Grade 12) and Teacher of Students with Disabilities) (<http://catalog.montclair.edu/programs/teacher-certification-mathematics-preschool-grade-12-students-disabilities-combined-bs-mat>)

- Mathematics Major (B.S.) (Combined B.S./M.S. Pure & Applied Mathematics) (<http://catalog.montclair.edu/programs/mathematics-bs-combined-bs-ms-pure-applied-mathematics>)
- Mathematics Major (B.S.) (Combined B.S./M.S. Statistics) (<http://catalog.montclair.edu/programs/mathematics-bs-combined-bs-ms-statistics>)
- Mathematics Major with Teacher Certification in Elementary School Teacher in Grades K-6 (B.S.) (<http://catalog.montclair.edu/programs/teacher-certification-mathematics-elementary-grades-k-6>)
- Mathematics Major, Discrete Applied Mathematics Concentration (B.S.) (<http://catalog.montclair.edu/programs/discrete-applied-mathematics-concentration-bs>)
- Mathematics Major, Mathematics Education Concentration with Teacher Certification in Mathematics (Preschool - Grade 12) (B.S.) (<http://catalog.montclair.edu/programs/mathematics-education-concentration-teacher-certification-preschool-grade-12-bs>)
- Mathematics Major, Mathematics of Finance Concentration (B.S.) (<http://catalog.montclair.edu/programs/mathematics-finance-concentration-bs>)
- Mathematics Major, Mathematics of Finance Concentration (B.S.) (Combined B.S./M.S. Statistics) (<http://catalog.montclair.edu/programs/mathematics-finance-concentration-combined-bs-ms-statistics>)
- Mathematics Major, Statistics Concentration (B.S.) (<http://catalog.montclair.edu/programs/mathematics-statistics-concentration-bs>)
- Mathematics Major, Statistics Concentration (B.S.) (Combined B.S./M.S. Statistics) (<http://catalog.montclair.edu/programs/mathematics-statistics-concentration-bs-combined-ms-statistics>)
- Mathematics Minor (<http://catalog.montclair.edu/programs/mathematics-minor>)
- Physics Major (B.S.) (<http://catalog.montclair.edu/programs/physics-bs>)
- Physics Major (B.S.) (Combined B.S./M.S. Pure & Applied Mathematics) (<http://catalog.montclair.edu/programs/physics-bs-combined-ms-pure-applied-mathematics>)
- Physics Major, Astronomy Concentration (B.S.) (<http://catalog.montclair.edu/programs/physics-astronomy-concentration-bs>)
- Physics Major, with Teacher Certification in Physical Science (Preschool-Grade 12) (B.S.) (<http://catalog.montclair.edu/programs/physics-teacher-certification-physical-science-preschool-grade-12-bs>)
- Physics Major, with Teacher Certification in Physics (Preschool-Grade 12) (B.S.) (<http://catalog.montclair.edu/programs/physics-teacher-certification-physical-science-preschool-grade-12-bs>)
- Physics Minor (<http://catalog.montclair.edu/programs/physics-minor>)

### Graduate

- Mathematical and Computational Modeling (M.S.) (<http://catalog.montclair.edu/programs/mathematical-computational-modeling-ms>)
- Mathematics Education (PhD) (<http://catalog.montclair.edu/programs/mathematics-education-phd>)
- Mathematics, Instructional Certification: Teacher Certification in Mathematics (Preschool-Grade 12) (<http://catalog.montclair.edu/programs/teacher-certification-mathematics-preschool-grade-12-graduate>)

- Mathematics, Instructional Certification: Teacher Certification in Elementary School with Subject Matter Specialization: Mathematics Grades 5-8 (<http://catalog.montclair.edu/programs/teacher-certification-elementary-school-subject-matter-specialization-mathematics-grades-5-8-graduate>)
- Mathematics, Mathematics Education Concentration (M.S.) (<http://catalog.montclair.edu/programs/mathematics-education-concentration-ms>)
- Mathematics, Pure & Applied Mathematics Concentration (M.S.) (<http://catalog.montclair.edu/programs/pure-applied-mathematics-concentration-ms>)
- Mathematics, Pure & Applied Mathematics Concentration (M.S.) (Combined B.S. Math/M.S.) (<http://catalog.montclair.edu/programs/pure-applied-mathematics-concentration-ms-combined-bs-ms>)
- Physical Science, Instructional Certification: Teacher Certification in Physical Science (Preschool-Grade 12) (<http://catalog.montclair.edu/programs/teacher-certification-physical-science-preschool-grade-12-graduate>)
- Statistics (M.S.) (<http://catalog.montclair.edu/programs/statistics-ms>)
- Statistics (M.S.) (Combined B.S. Math of Finance/M.S.) (<http://catalog.montclair.edu/programs/statistics-ms-combined-bs-math-finance-ms>)
- Statistics (M.S.) (Combined B.S. Math/M.S.) (<http://catalog.montclair.edu/programs/statistics-ms-combined-bs-math-ms>)
- Teaching Middle Grades Mathematics (M.A.) (<http://catalog.montclair.edu/programs/teaching-middle-grades-mathematics-ma>)
- Teaching Middle Grades Mathematics Certificate Program (<http://catalog.montclair.edu/programs/teaching-middle-grades-mathematics-certificate-graduate>)

## **Office of the Dean**

### **Graduate**

- Science, Instructional Certification: Teacher Certification in Elementary School with Subject Matter Specialization: Science Grades 5-8 (<http://catalog.montclair.edu/programs/teacher-certification-elementary-school-subject-matter-specialization-science-grades-5-8-graduate>)