

# COLLEGE OF SCIENCE AND MATHEMATICS

**Dean:** Lora Billings, Ph.D.

**Associate Dean for Academic Affairs:** Stefanie Brachfeld, Ph.D.

**Associate Dean for Administrative Affairs:** Scott Kight, Ph.D.

The College of Science and Mathematics (CSAM) provides strong and deep foundations in the natural, physical, social, and mathematical sciences. CSAM emphasizes experiential and *hands on* learning. Our programs foster critical thinking and communication skills, incorporating field, laboratory, and computational methods. CSAM alumni are employed in industry, in municipal, state and federal government, in academia, K-12 education and education venues such as nature centers and museums, in medicine, dentistry, veterinary and other health professions, and are pursuing advanced degrees in graduate and professional schools. Programs leading to teacher certification are available through multiple programs.

Montclair offers pre-professional training through joint programs with the Rutgers School of Medicine, leading to a B.S. degree at Montclair State University and either a Master of Physician Assistant (<https://www.montclair.edu/biology/articulation-programs/bs-pa-physician-assistant-rutgers>), Doctor of Medicine (<https://www.montclair.edu/biology/articulation-programs/bs-md-medical-rutgers>), Doctor of Dental Medicine (<https://www.montclair.edu/biology/articulation-programs/bs-dmd-dental-rutgers>), or Doctor of Physical Therapy (<https://www.montclair.edu/biology/articulation-programs/bs-dpt-physical-therapy-rutgers>) degree at Rutgers University. CSAM offers a 7 year combined B.S./Pharm.D. program with the Ernest Mario School of Pharmacy at Rutgers University (New Brunswick) (<https://www.montclair.edu/chemistry-biochemistry/articulation-programs/bs-pharmd-doctor-pharmacy-rutgers>) and a new B.S./Doctor of Optometry degree with the SUNY College of Optometry.

Under the direction of our world class faculty, students have access to state-of-the-art equipment and facilities and the opportunity to participate in cutting-edge research supported by the National Science Foundation, National Institute of Health, National Aeronautics and Space Administration, U.S. Department of Agriculture, and New Jersey Sea Grant, among many others. Undergraduate and graduate students have ample opportunity to gain research experience through the Science Honors Innovation Program (<https://www.montclair.edu/csam/ship>), senior projects, and graduate thesis research and applied projects, as well as career counseling and professional development opportunities through programs such as the PSEG Institute for Sustainability Studies Summer Green Teams Program (<https://www.montclair.edu/pseg-sustainability-institute/green-teams>), Louis Stokes Alliance for Minority Participation in Science (<https://www.montclair.edu/csam/lamp>), and the Health Careers Program (<https://www.montclair.edu/csam/health-careers>).

CSAM is home to several institutes, centers, laboratories, and schools dedicated to advancing STEM education and research in New Jersey including the Passaic River Institute (<https://www.montclair.edu/passaic-river-institute>), the Microscopy and Microanalysis Research Laboratory (<https://www.montclair.edu/mmrl>), the PSEG Institute for Sustainability Studies (<https://www.montclair.edu/pseg-sustainability-institute>), the Sokol Institute for Pharmaceutical Life Sciences (<https://www.montclair.edu/csam/sokol-institute>), the New Jersey School of Conservation (NJSOC) (<https://www.montclair.edu/csam/school-of-conservation>), and the Bristol-Myers Squibb Science Teaching and

Learning Center (<https://www.montclair.edu/csam/prism/bristol-myers-squibb>).

Degree programs offered by the College include:

- Biology
- Biochemistry
- Chemistry
- Computer Science
- Data Science
- Earth and Environmental Science
- Environmental Management
- Geography
- Information Technology
- Marine Biology and Coastal Science
- Mathematics
- Mathematics Education
- Molecular Biology
- Physics
- Sustainability Science

## 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>)
- Physics and Astronomy (<http://catalog.montclair.edu/colleges/science-mathematics/physics-and-astronomy>)

## 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>)
- Data Sciences Major (B.S.) (<http://catalog.montclair.edu/programs/data-sciences-bs>)
- Information Technology Major (B.S.) (<http://catalog.montclair.edu/programs/information-technology-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>)
- Computing Technology Certificate Program (<http://catalog.montclair.edu/programs/computing-technology-certificate>)
- 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/earth-and-environmental-science-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/earth-and-envirom-sci-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/earth-and-envirom-sci-teacher-certification-earth-science-preschool-grade-12-bs>)
- Earth and Environmental Science Minor (<http://catalog.montclair.edu/programs/earth-and-environmental-sci-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>)
- Sustainability Science Minor (<http://catalog.montclair.edu/programs/sustainability-science-minor>)
- 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>)
- Sustainability Science, Sustainability Leadership Concentration (M.S.) (<http://catalog.montclair.edu/programs/sustainability-science-sustainability-leadership-ms>)
- 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>)

### Graduate

- 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>)
- 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>)

programs/teacher-certification-physical-science-preschool-grade-12-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>)

## Physics and Astronomy

### Undergraduate

- 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

- Physical Science, Instructional Certification: Teacher Certification in Physical Science (Preschool-Grade 12) (<http://catalog.montclair.edu/>)