

# COLLEGE OF SCIENCE

**Contacts:** Dr. Wesley Stites, Dean

**Website:** <http://www.marshall.edu/cos/>

cos@marshall.edu

The College of Science was established in 1976 and is composed of five departments: Biological Sciences; Chemistry; Criminal Justice, Criminology, and Forensic Sciences; Mathematics and Physics; and Natural Resources and Earth Sciences. While the College of Science Dean's Office is located in Science Building 270, the college operates out of several buildings including the Science Building, Morrow Library, Smith Hall, and the Weisberg Applied Engineering Complex.

## Mission of the College

Scientific and technologically trained people are essential to our nation's health and prosperity in a rapidly expanding global economy. Students majoring in baccalaureate degree programs in the College of Science receive a broad education conducive to pursuing a wide range of career options. Course requirements include a solid grounding in the student's chosen area of scientific interest along with studies in humanities and the social sciences. Students receive instruction in a learning environment that encourages competency in written and oral communication skills along with the ability to work in groups. Special emphasis is placed on experiential learning through participation in activities such as undergraduate research and internships. For non-science majors, departments in the College of Science offer a series of courses that focus on enhancing science literacy through instruction in integrated science and practical applications of mathematics.

## Biological Sciences - Dr. Brian Antonsen, Chair

The Department of Biological Sciences is committed to teaching students about the science of life at levels that extend in size from the molecular to ecosystem, and which include the study of myriad interactions between living and non-living parts of our world. The department offer a diversity of courses in areas such as cell, molecular and medical biology; ecology; organismal biology; and evolutionary biology;. Students are actively engaged in research with faculty mentors, and they frequently publish their work, and give presentations at national meetings. Programs in biology have been designed to prepare students to obtain workforce positions in the life sciences; or, for those who seek further training, to enter either professional programs in a variety of health care disciplines or graduate school to pursue a Master's or Ph.D.

Alumni of these programs have chosen diverse career paths and are now working as health professionals, teaching at all educational levels, serving as environmental researchers and regulators, conducting biomedical and pharmaceutical research, and operating bioscience and consulting businesses that help grow and diversify the West Virginia economy.

## Chemistry - Dr. Derrick Kolling, Chair

The Department of Chemistry offers courses with expert faculty complemented by hands-on experiences in a research laboratory. Research opportunities for students of Chemistry range from glycation

of proteins to determining cannabinoid levels in commercial products; these experiences allow many of our majors the opportunity to be co-authors on publications in highly visible peer-reviewed scientific journals. Class sizes and student-to-faculty ratios are small, providing some of the best educational experiences available anywhere. An ACS-certified chemistry, chemical sciences, biochemistry, environmental chemistry, or forensic chemistry major provides students with preparation to work in the chemical industry, pursue graduate studies in chemistry, or apply to professional schools in many health-related fields. All majors who conduct research within the Department can expect to attend at least one national chemistry-related scientific conference.

## Criminal Justice, Criminology, and Forensic Sciences - Dr. Dhruva Bora, Chair

The Department of Criminal Justice, Criminology, and Forensic Sciences at Marshall University offers a unique and dynamic educational experience for students who are passionate about exploring the complexities of crime and justice. The department is renowned for its commitment to excellence in education, research, and service, and our faculty members are experts in their respective fields.

The department offers programs in Criminal Justice and Criminology, Cyber Forensics and Security, and Forensic Science. The criminal justice undergraduate program is designed to provide students with a strong foundation in the theories and practices of law enforcement, justice, and corrections, while the graduate program offers advanced courses that prepare students for leadership roles in their fields.

Cyber Forensics and Security undergraduate and graduate programs are particularly innovative, providing students with the skills and knowledge needed to combat cybercrime, train law enforcement in digital evidence recovery, and protect sensitive information.

The Forensic Science program is nationally recognized as the foremost master's program in the field. Students in this program have access to state-of-the-art facilities and cutting-edge technologies, and are taught by experts in the field who have extensive experience in forensic analysis. The program covers a broad range of topics, including DNA analysis, ballistics, and forensic toxicology, and prepares students for careers in crime labs, law enforcement agencies, and other organizations that require expertise in forensic science.

## Mathematics and Physics - Dr. Alfred Akinsete, Chair

The Department of Mathematics and Physics is home to a vibrant community of scholars who are passionate about exploring the fascinating intersection among mathematics, statistics and physics. The department prides itself on its diverse and quality of award-winning faculty who are experts in their fields. We offer a wide range of undergraduate and graduate programs, including majors in Mathematics, Statistics, Physics, and Physical and Applied Sciences, as well as advanced degrees in Mathematics, including an Area of Emphasis in Statistics, and Physics.

At the undergraduate level, we offer a comprehensive curriculum designed to provide students with a strong foundation in the core concepts and principles of mathematics, statistics and physics, from calculus and probability to quantum mechanics and thermodynamics,

taught by experienced faculty members who are dedicated to providing engaging and intellectually challenging instruction.

Our graduate programs in Mathematics and Physics are designed for students who are looking to take their knowledge and skills to the next level. Graduate students have the opportunity to work closely with faculty members on cutting-edge research projects, and many go on to successful careers in academia, industry, and government.

## Natural Resources and Earth Sciences - Dr. Mindy Yeager-Armstead, Chair

The Department of Natural Resources and Earth Sciences integrates scientific theory and application in an active learning environment to facilitate understanding of earth's history and current conditions and focus on a sustainable future. Bringing together geologists, biologists, chemists, and social scientists, we use a hands-on curriculum to investigate real world issues and seek solutions for the challenges of our day. In our undergraduate programs in Geology, Natural Resources & Recreation Management, Environmental Science, and Specialty Agriculture students learn by applying knowledge and critical thinking strategies to complex issues surrounding environmental protection, regulation and remediation, natural resource management, and sustainable agriculture. Our students are prepared to shape the future through restoration of historic impacts, leading regulatory efforts, becoming resource managers, developing and implementing sustainable food strategies.

At the graduate level, Master of Science programs in Geology and Natural Resources & the Environment provide platforms for students to pursue cutting-edge research and innovation to safeguard our planet's resources. Our faculty members are actively engaged in research on a range of topics including human impacts on aquatic ecosystems, management and sustainable development of terrestrial ecosystems, implementation of sustainable agricultural strategies, and remediation of resource extraction in our area. Graduate students have access to state-of-the-art research facilities including a remote sensing lab, a GIS lab, an aquatics lab, and a range of equipment and technologies. Graduates of our program are well-prepared to pursue careers in academia, regulatory and government agencies, non-profit organizations, and the private sector.

Course offerings by all departments within the college are available to science majors and to students in other disciplines who are interested in broadening their skills and knowledge in basic science, mathematics, and computers.

## Departments




- Combined College and Professional Degrees (<http://catalog.marshall.edu/undergraduate/programs-az/science/combined-college-professional-degrees/>)
- Department of Biological Sciences (<http://catalog.marshall.edu/undergraduate/programs-az/science/biological-sciences/>)
- Department of Chemistry (<http://catalog.marshall.edu/undergraduate/programs-az/science/chemistry/>)
- Department of Criminal Justice, Criminology and Forensic Sciences (<http://catalog.marshall.edu/undergraduate/programs-az/science/criminal-justice-criminology/>)

- Department of Mathematics and Physics (<http://catalog.marshall.edu/undergraduate/programs-az/science/mathematics/>)
- Department of Natural Resources and Earth Sciences (<http://catalog.marshall.edu/undergraduate/programs-az/science/natural-resources-environment/>)
- Pre-Professional Health Care Studies, Interdisciplinary Minor (<http://catalog.marshall.edu/undergraduate/programs-az/science/preparation-professional-careers-health-care-professions/>)
- Sustainability, Interdisciplinary Minor (<http://catalog.marshall.edu/undergraduate/programs-az/science/interdisciplinary/>)







## Admission Requirements

The ACT scores required for full admission to the College of Science are a minimum mathematics score of 21 and a minimum composite score of 21. For the SAT, a score of 530 in math and a 1060 composite score are required. Students who are fully admitted are allowed to enroll in the major of their choice.

A student who does not meet these admission requirements but still wishes to pursue a program in the College of Science may gain admission by enrolling as a pre-science major<sup>1</sup> and completing the following requirements:


| Code                         | Title  | Credit Hours |
|------------------------------|--|--------------|
| Select one of the following: |  |              |
| ENG 101                      |  Beginning Composition | 3            |
| ENG 200H                     |  Texting the World (CT) |              |
| ENG 201H                     |  English Comp Honors    |              |
| <b>Total Credit Hours</b>    |  | <b>3</b>     |






with a grade of C or higher.

| Code                         | Title  | Credit Hours |
|------------------------------|--|--------------|
| Select one of the following: |  |              |
| MTH 127                      |  College Algebra-Expanded      | 3-5          |
| MTH 130                      |  College Algebra               |              |
| MTH 132                      |  Precalculus with Sci Applica  |              |
| MTH 122                      |  Plane Trigonometry            |              |
| MTH 140                      |  Applied Calculus              |              |
| MTH 229                      |  Calculus/Analytic Geom I (CT) |              |
| <b>Total Credit Hours</b>    |  | <b>3-5</b>   |

with a grade of C or higher. (For Criminal Justice majors, MTH 160 Applied Math Reasoning (CT) will fulfill the math requirement.)

3. A transfer student with a GPA of less than 2.0 who has not passed college algebra with a C or better will be placed in pre-science until he or she has a C or better in one of the following:

| Code                         | Title   | Credit Hours |
|------------------------------|---|--------------|
| Select one of the following: |   |              |
| MTH 127                      |  College Algebra-Expanded | 3-5          |

|         |   |                               |
|---------|---|-------------------------------|
| MTH 130 |  | College Algebra               |
| MTH 132 |  | Precalculus with Sci Applica  |
| MTH 122 |  | Plane Trigonometry            |
| MTH 140 |  | Applied Calculus              |
| MTH 229 |  | Calculus/Analytic Geom I (CT) |

---

**Total Credit Hours** **3-5**

<sup>1</sup> pre-biology, pre-chemistry, pre-computer information & technology, pre-criminal justice, pre-digital forensics, pre-environmental science, pre-geology, pre-mathematics, pre-natural resources & recreation management, and pre-physics

After meeting these requirements students will become fully admitted and will be allowed to declare a major.

## Academic Policies

For students transferring from another institution to Marshall, the College of Science will permit the application of any appropriate transfer credits accepted by the university to meet general education requirements. For coursework to be accepted as fulfilling upper division requirements, that work must have been earned at institutions accredited to offer junior/senior level courses.

## Degree Requirements

In addition to satisfying the requirements for a specific major, students must meet the college requirements outlined below and the university requirements as described in this catalog.

Students entering any baccalaureate degree program in the College of Science are responsible for meeting core foundations, which are baccalaureate program initiatives approved by the faculty and the university president for all students. Students are to consult with their academic/program advisors or the chairperson of their major departments for guidance in determining the specific details of meeting the above-referenced baccalaureate curricular initiatives.

## General College Requirements

1. Candidates for graduation must complete all Marshall University's Core Curriculum requirements as defined in this catalog.
2. Candidates for graduation must apply for graduation through the office of the dean.
3. Candidates for graduation must have a Grade Point Average of 2.0 or higher on all work attempted at Marshall University, and must have an average of 2.0 or higher in their major. Quality point deficiencies in the major cannot be reduced by taking lower division (100/200 level) courses within the major department, except as provided for by the *D/F* Repeat Rule; exceptions may be allowed by the department chair with the concurrence of the dean.
4. A minimum of 120 semester hours of credit is required for graduation. Forty (40) hours must be earned in courses numbered 300-499. Courses taken more than once will only count one time for graduation hours. Courses transferred from two-year or community colleges cannot be used to satisfy the upper division requirement.
5. The *CR/NC* option cannot be used:
  - a. for any course taken to meet the specific requirements for a B.S. degree (see below);
  - b. for any course taken to fulfill the requirements for a departmental major; or
  - c. for any course taken to fulfill the requirements for a minor.
6. Juniors and seniors are required to meet with an advisor in the Dean's Office to review an evaluation to determine if they are making satisfactory progress toward graduation.

## College of Science Requirements for the B.A. and B.S. Degrees

(Requirements vary for some programs. See major-specific requirements for details.)

| Code                                 | Title   | Credit Hours |
|--------------------------------------|---|--------------|
| <b>Requirements</b>                  |   |              |
| <i>Natural and Physical Sciences</i> |   |              |
|                                      | Courses to be distributed in at least two fields.   | 11           |
| <i>Mathematics - Calculus</i>        |   |              |
|                                      | Requirement varies by department. Students with lower ACT or SAT scores will be placed in the mathematics sequence at an appropriate level. | 3-5          |
| <b>Total Credit Hours</b>            |   | <b>14-16</b> |