College of Sciences

Web Site: http://sci.odu.edu

Chris D. Platsoucas, Dean
Ravi Mukkamala, Associate Dean
Terri Mathews, Associate Dean

The College of Sciences' degree programs are designed to prepare students for careers in the sciences or to lay broad foundations for specialized training in these fields of knowledge.

The college is comprised of the Departments of Biological Sciences, Chemistry and Biochemistry, Computer Science, Mathematics and Statistics, Ocean, Earth and Atmospheric Sciences, Physics, and Psychology. The Departments of Biological Sciences, Chemistry and Biochemistry, Mathematics and Statistics, Ocean, Earth and Atmospheric Sciences, and Physics cooperate with the Darden College of Education to provide the necessary courses for certification to teach in the Commonwealth.

Undergraduate Degree Requirements for all Majors in the College of Sciences

Core Requirements

Fulfilling the University General Education Requirements for a specific program satisfies the degree requirements for the College of Sciences. Refer to the University General Education section of this Catalog for details about which courses satisfy the skills, ways of knowing, and upper-division requirements of the General Education program.

Additional major requirements are listed under the various departmental programs.

General Requirements

1. Students wishing to take a major or a minor in the College of Sciences must declare with the appropriate department.

2. The College of Sciences allows a maximum of four hours of activity credit to be applied toward any degree granted by the college. Activity credit beyond the four-hour maximum may be permitted in unusual circumstances with the written approval of the dean of the college. Activity credit required by a student's major department will not be counted toward the credit limitation. (See the Catalog section on Activity Credits for the definitions and other restrictions on activity course credits.)

College of Sciences Degree Programs

Health-Related Sciences

<table>
<thead>
<tr>
<th>Subject</th>
<th>BS</th>
<th>MS</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Science</td>
<td>X</td>
<td>X</td>
<td>X¹</td>
</tr>
<tr>
<td>Biological Chemistry</td>
<td>X</td>
<td>X²</td>
<td>X¹⁰</td>
</tr>
<tr>
<td>Clinical Psychology</td>
<td>X</td>
<td>X</td>
<td>X³</td>
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Life Sciences

<table>
<thead>
<tr>
<th>Subject</th>
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<th>PhD</th>
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</thead>
<tbody>
<tr>
<td>Biology</td>
<td>X</td>
<td>X</td>
<td>X⁴</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>X</td>
<td>X²</td>
<td>X¹⁰</td>
</tr>
<tr>
<td>Psychology</td>
<td>X</td>
<td>X</td>
<td>X³</td>
</tr>
</tbody>
</table>

Physical Sciences

<table>
<thead>
<tr>
<th>Subject</th>
<th>BS</th>
<th>MS</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Computer Science</td>
<td>X</td>
<td>X⁸</td>
<td>X⁸</td>
</tr>
</tbody>
</table>

Old Dominion University/Eastern Virginia Medical School Joint Program in Medicine

The joint program in medicine is designed to encourage highly qualified students to receive a B.S. from Old Dominion University and an M.D. from Eastern Virginia Medical School. Students apply after completion of their freshman year at Old Dominion University. Upon successful completion of requirements and graduation from Old Dominion University, a student accepted in the ODU/EVMS Joint Program in Medicine will be guaranteed admission to Eastern Virginia Medical School.

Eligibility and Selection of Students for the Program

1. Applications will be accepted from students without regard to state of residency.

2. Students apply for the program at the beginning of their sophomore year at Old Dominion. A joint committee of ODU/EVMS faculty reviews and selects applicants for this program with approval by the Committee on Admissions at EVMS. EVMS accepts only U.S. citizens and Permanent Residents in their medical program.

3. Criteria for the program include a combined Math and Verbal Scholastic Aptitude Test minimum score of 1250 and an overall high school grade point average of at least 3.40. Students are expected to complete one year of general chemistry and the first semester of organic chemistry by the end of the first semester of their sophomore year. Students who do not meet these minimum requirements will not be considered for the program.

4. Sophomores at Old Dominion will apply through the Prehealth Advisory Committee, room 236 in the Mills Godwin building. Applications will be received and reviewed by that committee. Based upon academic records, including high school performance and SAT scores, and non-
academic factors such as volunteerism, leadership, and health care exposure, students will be nominated for the program.

5. Qualified applicants will be interviewed by members of a joint Old Dominion University/Eastern Virginia Medical School faculty committee.

6. To guarantee their positions at Eastern Virginia Medical School, students in this program should maintain an overall and science grade point average of 3.25. Also, a student in this program must receive satisfactory annual reviews from a faculty committee at Old Dominion University. A student will be dropped from the program if found guilty of violating the Honor Code, or if the recommendations of the major advisor and joint committee were not followed. A joint committee of faculty members from Old Dominion University and Eastern Virginia Medical School will annually review the continued eligibility of students in the program.

7. Students in this program must still take the courses required by Eastern Virginia Medical School, i.e. one year of biology, two years of chemistry (including organic chemistry), and one year of physics, and obtain grades of B or better. These courses must be completed at Old Dominion University; all requests to transfer the prerequisite courses from another institution must be approved by the Prehealth Advisory Committee. The Old Dominion University faculty will determine which are the appropriate courses to meet these requirements.

8. Questions about the joint program in medicine should be directed to Reneldo Randall, Director of Advising, College of Sciences, (757) 683-6790.

Other Advantages of the Program

Because students enrolled in this program will be assured of a position at Eastern Virginia Medical School, they will be encouraged to take courses that meet their interest and needs, rather than courses perceived as necessary to gain entrance into medical school.

Students in this program will be expected to complete the requirements for a baccalaureate degree before beginning medical school.

Policy for the Awarding of Bachelor's Degrees To Students Attending Professional School in Medically Related Fields

Old Dominion University students attending an accredited medical, dental, pharmacy, or veterinary school without a bachelor’s degree shall be given the opportunity of receiving the bachelor’s degree in accordance with the prescribed criteria as follows:

1. The student applying for the degree must complete a minimum of 90 semester hours of undergraduate credit prior to attending professional school.
2. The student must fulfill the General Education requirements of the University and the College of Sciences.
3. Thirty of the last thirty-six hours prior to professional school must be taken at Old Dominion University. A minimum of 12 hours at the 300/400 level in the major program must be taken at Old Dominion University.
4. This policy is applicable to any bachelor’s degree offered by Old Dominion University. It must be kept in mind, however, that all departmental requirements must be met either prior to professional school or by using courses taken during the first year of professional school. This latter course of action requires written petition to and approval by the appropriate departmental chair. In either case the student must complete at least two-thirds of the major requirements for the degree prior to attending professional school.
5. The degree is to be awarded only after completion of one year of professional school with acceptable academic performance (to be determined by a letter from the professional school stating that the student is eligible to matriculate for the second year).

6. The student would apply for the bachelor’s degree on completion of one year of professional school. Certification by the appropriate department chair is required as usual.

Preparation for Pharmacy School

The following courses are recommended for students who wish to complete their pharmacy prerequisites in two years. These courses are particularly designed to meet requirements at the School of Pharmacy of Virginia Commonwealth University, which will accept only students who present at least 65 hours of credit. Students should consult schools of their interest regarding entrance requirements. Recommended courses are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 121N</td>
<td>3</td>
<td>General Biology I</td>
</tr>
<tr>
<td>BIOL 122N</td>
<td>1</td>
<td>General Biology I Lab</td>
</tr>
<tr>
<td>BIOL 123N</td>
<td>3</td>
<td>General Biology II</td>
</tr>
<tr>
<td>BIOL 124N</td>
<td>1</td>
<td>General Biology II Lab</td>
</tr>
<tr>
<td>CHEM 121N</td>
<td>8</td>
<td>Foundations of Chemistry I Lecture</td>
</tr>
<tr>
<td>&amp; CHEM 122N</td>
<td>&amp; 8</td>
<td>Foundations of Chemistry I Laboratory</td>
</tr>
<tr>
<td>&amp; CHEM 123N</td>
<td>&amp; 8</td>
<td>Foundations of Chemistry II Lecture</td>
</tr>
<tr>
<td>&amp; CHEM 124N</td>
<td>&amp; 8</td>
<td>Foundations of Chemistry II Laboratory</td>
</tr>
<tr>
<td>CHEM 211</td>
<td>6</td>
<td>Organic Chemistry Lecture</td>
</tr>
<tr>
<td>&amp; CHEM 213</td>
<td>&amp; 6</td>
<td>Organic Chemistry Lecture</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>&amp; CHEM 214</td>
<td>&amp; 4</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>ENGL 110C</td>
<td>3</td>
<td>English Composition</td>
</tr>
<tr>
<td>Three additional hours in English</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MATH 162M</td>
<td>3</td>
<td>Precalculus I</td>
</tr>
<tr>
<td>MATH 163</td>
<td>3</td>
<td>Precalculus II</td>
</tr>
<tr>
<td>MATH 211</td>
<td>4</td>
<td>Calculus I</td>
</tr>
<tr>
<td>PHYS 111N</td>
<td>4</td>
<td>Introductory General Physics</td>
</tr>
<tr>
<td>PHYS 112N</td>
<td>4</td>
<td>Introductory General Physics</td>
</tr>
<tr>
<td>COMM 101R</td>
<td>3</td>
<td>Public Speaking</td>
</tr>
<tr>
<td>PHIL 345E</td>
<td>3</td>
<td>Bioethics</td>
</tr>
<tr>
<td>Electives (liberal arts and behavioral sciences)</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td><strong>74</strong></td>
<td></td>
</tr>
</tbody>
</table>

Contact the Advising Office, College of Sciences, 757-683-6790 for questions concerning preparation for Pharmacy School.

Prehealth Advisement–Prehealth Advisory Committee

Students seeking careers in medicine, dentistry, osteopathy, optometry, podiatry or veterinary medicine should request advisement as early as possible from the College of Sciences prehealth advisory committee, as well as from their major or other academic advisor. This is to obtain general information of value in gaining acceptance to the professional school of choice, such as how and when to apply for admission, preparation for preprofessional tests and interviews, obtaining letters of evaluation and recommendation, and choosing among the many different schools and professions. Advice is also given on course selection, although only the academic advisor can formally approve these selections.

Students seeking admission to medical, dental and other medically related professional schools should confer with the Prehealth Advisory Committee in their junior year concerning the preparation of letters of evaluation by the Committee.

The chair of the Prehealth Advisory Committee is Terri Mathews, Associate Dean, College of Sciences. To receive prehealth advisement, please contact Reneldo Randall, Associate Chair of the Prehealth Advisory Committee located in MGB 236, (757) 683-6790.

B.S./M.B.A. Linked Program

The linked B.S./M.B.A. program is designed for well qualified non-business undergraduate ODU students to start their M.B.A. program.

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prior to completing their undergraduate degree. Qualified non-business undergraduate students will be able to start taking M.B.A.-level courses as early as the second semester of their junior year and count up to 12 graduate credits toward the undergraduate degree. This may enable them to complete their undergraduate and M.B.A. degrees in approximately five-and-a-half years. Students in the linked program must earn a minimum of 150 credit hours (120 for the undergraduate degree and 30 for the graduate degree). Students interested in pursuing the linked program should carefully plan their undergraduate course of study considering the requirements of the program, as explained below.

Admission Requirements
A potential candidate will have:
1. Achieved a minimum Graduate Management Admission Test (GMAT) score of 550
2. Completed all lower level general education requirements
3. Completed at least 24 credit hours at ODU with a GPA of at least 3.0
4. A minimum index of 1200 (index is computed as 200 times the ODU GPA plus GMAT score)

Admissions Procedure
Students interested in the linked program should plan to take the GMAT at least two semesters prior to the semester in which they plan to enroll. Applications should be submitted to the M.B.A. Program Office at the beginning of one full semester (fall, spring) prior to planned enrollment. Students interested in the program should discuss their plans with the M.B.A. program manager as early as possible. The M.B.A. program manager will act as their advisor. The M.B.A. Program Office is located in 1026 Constant Hall. The phone number is 683-3585.

M.B.A Core Courses
Admitted students may begin to complete courses from the M.B.A. pre-core and core starting in the second semester of their junior year. The credit hours will count toward the undergraduate degree and will meet upper-level General Education requirements. Students must maintain a 3.0 grade point average in these courses to continue in the program.

MBA Pre-Core
MBA 600 Introduction to Statistics 1
MBA 601 Introduction to Managerial Economics 1
MBA 602 Introduction to Finance 1
MBA 603 Introduction to Accounting 1
MBA 604 Introduction to Information Management 1

MBA Core
ACCT 609 Managerial Accounting 2
BNAL 606 Statistics for Managers 2
BNAL 610 Fundamentals of Business Analytics 2
ECON 618 Global Macroeconomics 2
FIN 616 Investments and Portfolio Management 2
FIN 619 Business Law and Ethics 2
INBU 620 International Business Issues 2
MGMT 605 Essentials of Leadership 2
MKTG 617 Marketing Strategy 2

Requirements for the M.B.A.
The entire program for a general M.B.A. is 45 credit hours for non-business majors. All courses will be available online and on main campus except for the pre-core, which is only offered online.

Students have to satisfactorily complete:
1. The five hour pre-core
2. Undergraduate requirements and the 16 M.B.A. core courses (32 credit hours). The 16 M.B.A. core courses includes the seven M.B.A. core courses that meet upper-division General Education requirements in the undergraduate degree and the following nine M.B.A. core courses:

Research and Service Centers
Center for Computational Science
The center provides a focus for the University's efforts to perform scientific investigation through large-scale computer models of natural phenomena. It complements the Virginia Modeling, Analysis and Simulation Center, which focuses primarily on the simulation of human-engineered systems, though some underlying methodologies overlap. With close ties to the Department of Energy and NASA laboratories and support from these agencies and NSF, center personnel perform computationally intensive research, develop algorithms and software for high-end parallel computers, train computationally oriented graduate students and post-docs, and disseminate the products of their research, directed scientific results and software libraries, within and beyond the University.

Center for Molecular Medicine
The Center for Molecular Medicine (CMM) provides a focal point for research in molecular biology, immunology and mammalian molecular genetics supported by peer-reviewed research grants primarily from the National Institutes of Health (NIH) and other sources. Additional areas of research include bioinformatics, systems biology and computational/mathematical biology.

Commonwealth Center for Coastal Physical Oceanography
The Commonwealth Center for Coastal Physical Oceanography focuses research efforts on major physical processes in the coastal ocean. These processes include continent scale currents, exchange with the open ocean, and effects of global change. Techniques focus on computer modeling and analysis of existing data bases. The center provides advanced computer resources, technical support, and funding for faculty, research associates, and students. Visitors are encouraged to use the facility during either short- or long-term stays.

Center for Accelerator Science
The Center for Accelerator Science, established in partnership with Thomas Jefferson National Accelerator Facility (Jefferson Lab), aims to meet the nation’s need for scientists who will advance the sciences and technologies of particle accelerators and light sources for use in basic science, applied science and industry.