Mellon College of Science

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http://www.cmu.edu/mcs/

The Mellon College of Science (MCS) has provided the undergraduate training for many of today's leading scientists. We have earned national recognition for our integration of undergraduate education and research from such organizations as the National Science Foundation, the Howard Hughes Medical Institute, and the Beckman Foundation. MCS students gain a broad education in science, mathematics, and the liberal arts while using state-of-the-art computational approaches in their courses, laboratories, and research activities. Our faculty members are committed to teaching as well as to a wide range of scientific research. This combined emphasis on education and research brings special benefits to students, including increased awareness of current scientific developments that are incorporated in classroom instruction, and, most importantly, opportunities to participate with faculty, graduate students, and other research scientists in a variety of research projects.

In the context of rigorous training in each field, the MCS curriculum emphasizes problem-solving, communication, and analytical skills, and it teaches our students the value of hard work and discipline. Our students go on to highly successful careers in a broad range of fields like astrophysics, biotechnology, computer science, business management, environmental science, health care policy, investment banking, marketing, analysis, medicine, patent law, and pharmaceuticals. Our alumni credit their education in science for preparing them for a lifetime of learning and achievement; their employers attest to their ability to succeed and to continue learning in an ever-changing world.

The MCS Departments of Biological Sciences, Chemistry, Mathematical Sciences, and Physics each outline their degree programs and courses in the departmental sections. Each program is based on a core of courses required by the college — two semesters each of calculus and physics and one semester each of chemistry, biology, and computer science. These courses lay a broad foundation in the sciences and not only enable our students to choose a major from any of the programs offered in MCS, but also prepare them for application to graduate school.

Students select their major in the spring of the first year so that the sophomore year begins with a focus within a department. Most of the courses required within a major are scheduled in the sophomore and junior years, leaving much of the senior year and part of the junior year open for electives. This provides the opportunity to participate in undergraduate research, explore interdisciplinary studies, study abroad, pursue additional majors or minors in other fields, or take other specialty courses oriented toward immediate job placement upon graduation or entry into graduate studies.

Tailoring Your Education

The Mellon College of Science offers students tremendous opportunity for tailoring their education to meet individual professional objectives. Whether you target your degree to a particular field in your discipline via departmental options and concentrations, add a secondary major, minor, or degree to your primary degree program, participate in honors programs, or pursue a master's degree along with your bachelor's degree, MCS has much to offer you. Many of these opportunities are outlined below.

Departmental Concentrations

Each department in MCS offers degrees and programs that allow students to explore particular fields within a science discipline. These are outlined below — see the departmental sections for further details.

Biological Sciences
- Biochemistry
- Biophysics
- Cell Biology
- Computational Biology
- Developmental Biology
- Genetics
- Molecular Biology
- Neuroscience

Chemistry
- Biochemistry
- Colloids, Polymers, and Surfaces
- Computational Chemistry
- Environmental Chemistry
- Management
- Material Chemistry
- Polymer Science

Mathematical Sciences
- Computational and Applied Mathematics
- Computational Finance
- Discrete Mathematics and Logic
- Mathematics
- Operations Research
- Statistics

Physics
- Applied Physics
- Astrophysics
- Biological Physics
- Chemical Physics
- Computational Physics

Minors, Double Majors, and Double Degrees

As an MCS student, you can pursue additional majors and minors to complement your primary degree, not only within the science college, but also through the other colleges at Carnegie Mellon. Carnegie Mellon offers many exciting interdisciplinary majors and minors, some of which are listed below. In addition, every college and most departments have designed minors or second majors in their discipline so that you can gain expertise in their fields as well.

Some students choose to gain this expertise by following a double degree program. This results in two distinct bachelor's degrees. Please see the section on Undergraduate Academic Regulations for a more formal definition of these "Multiple Degree" programs.

Interdisciplinary Majors and Minors

Here is a sampling of just a few of the interdisciplinary minors and majors offered at Carnegie Mellon. Please see the appropriate sections elsewhere in this catalog for specific descriptions and course requirements.

- Biological Sciences and Psychology Major
- Computational Biology Major
- Engineering Studies Minor
- Environmental Policy Major
- Health Care Policy and Management Minor
- International Affairs Minor
- Mathematics and Economics Major
- Robotics Minor
- Scientific Computing Minor
- Technology and Policy Minor

For a complete list of the minors offered at Carnegie Mellon, please go to http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateoptions/

Intercollege Programs

MCS participates in two intercollege programs, the Bachelor of Science and Arts Degree program and the Science and Humanities Scholars program. Enrollment for the Science and Humanities program is by invitation only for incoming first-year students, and by application for current students.
Bachelor of Science and Arts Degree Program (BSA)

Students in the Bachelor of Science and Arts Degree program are jointly admitted to MCS and the College of Fine Arts (CFA). This is a degree program for students who are naturally gifted in both the arts and the sciences, and allows for the combining of talents in these areas. More details can be found at http://coursecatalog.web.cmu.edu/servicesandoptions/intercollegeprograms/bxaintercollege/

Science and Humanities Scholars Program (SHS)

Students in the Science and Humanities Scholars Program (SHS) are jointly admitted to MCS and the Dietrich College of Humanities and Social Sciences (DC). Participants in this program follow a special general education core, but have the flexibility to choose a primary major in either of the two colleges. More detail can be found at http://coursecatalog.web.cmu.edu/servicesandoptions/intercollegeprograms/

Honors Degree Programs in MCS

Several of the departments in MCS offer students an opportunity to participate in a departmental honors degree program. Some of these programs result in a master’s degree along with the bachelor’s degree (see next section on accelerated master’s programs). These programs are listed below; see the department’s section of the catalog for more details.

- Honors Program in Research Biology
- Departmental Honors in Chemistry
- Honors B.S./M.S. Program in Chemistry
- Honors B.S./M.S. Program in Mathematical Sciences

Accelerated Master’s Programs

Carnegie Mellon offers some accelerated master’s programs for motivated students, whereby students complete both the bachelor’s and the master’s degree in four or five years. Some programs are in the student’s home department in MCS as part of an honors program, while others are offered through one of our graduate schools at Carnegie Mellon. Below is a listing of the programs currently available to MCS students: please see the appropriate sections of the catalog for more details.

- Honors B.S./M.S. Program in Chemistry
- Honors B.S./M.S. Program in Mathematical Sciences
- Accelerated Master’s Program in the Heinz College

Pre-Professional Programs

Many students in the Mellon College of Science decide to pursue professional training such as medical school or law school after completing their undergraduate work. Carnegie Mellon offers strong advising services to support these students. Through these programs, students get help with everything from course selection to identification of important experiential opportunities to the application process itself.

Health Professions Program

Faculty Contact: Jason D’Antonio
Please see the Undergraduate Options (http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateoptions/#healthprofessionsprogram) section for details on the Health Professions Program.

Pre-Law Advising Program

Faculty Contact: Joseph Devine
Please see the Undergraduate Options (http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateoptions/#pre-lawadvisingprogram) section for details on the Pre-Law Advising Program.

University Self-Defined Majors

With a well-thought proposal, you may be able to pursue a major you have designed to meet your particular interests and goals. Please see the catalog section on Undergraduate Options at http://coursecatalog.web.cmu.edu/servicesandoptions/undergraduateoptions/

Study Abroad

There are many programs for studying abroad, usually during your junior year. Please see the catalog section on Undergraduate Options for more details, and talk with the Office of International Education to get information and advice specifically for you.

Applying Your Education Through Research

An important feature of education in MCS is the opportunity for undergraduate research experience. This experience may be arranged as a course taken for credit or occasionally as a part-time job. Our web site (www.cmu.edu/mcs) offers a range of useful information including links to faculty research areas, links to undergraduate research programs at other institutions, and ideas on how to get involved. Because of the strong research base of MCS, undergraduate research positions offer an exciting opportunity to apply your theoretical training to participate in the discovery of new knowledge.

Students can earn MCS Research Honors for significant research accomplishments; see the policy outlined below for the requirements.

Mellon College of Science Research

Undergraduates in the Mellon College of Science will be awarded MCS College Honors at the completion of their degree if they have met one of these requirements:

1. Successfully completed the Honors BS/MS program in the Department of Chemistry or Department of Mathematical Sciences.
2. Successfully completed the departmental honors program in the Department of Biological Sciences or the Department of Chemistry.
3. Earned a cumulative grade point average of 3.20 or higher and carried out significant research. Typically, this would consist of an academic project carried out for at least two semesters. However, a single project that spans a summer and a semester or that the research mentor deems to be significant and sustained, even if the student worked for pay rather than credit, will be allowed. In addition, some form of public dissemination of this research, which has been approved by the Associate Dean of MCS, such as a peer reviewed publication, research thesis, or presentation at an external scientific meeting is required.

The Meeting of the Minds by itself is not sufficient and participation in a preapproved judged competition, such as Sigma Xi, is necessary.

Final approval of nominations for MCS Honors will come from the Dean of MCS and the Associate Dean for Undergraduate Affairs.

Research Centers

The Mellon College of Science is home to a number of innovative research centers. These centers are particularly strong because of the interdisciplinary collaboration of their scientists. This interdisciplinary research brings international prestige to the college. Many students conduct undergraduate research with one of these centers.

The Art Conservation Research Center is dedicated to helping museums, libraries and archives improve the ways of caring for their collections. For over 50 years, the Center has been a world leader in discovering the origins of aging problems that threaten cultural property and in developing practical and effective strategies to inhibit or avoid deterioration.

The Bruce and Astrid McWilliams Center for Cosmology joins research efforts in astrophysics and particle physics and partners with computer science, statistics, and other disciplines to unravel the mysteries of the universe.

The Center of Atmospheric Particle Study’s goal is to be the world leader in science, engineering, and policy covering the full role of fine particulate matter in the atmosphere. Our goal in research is to advance the state of knowledge across this spectrum substantially, to provide both policy-relevant research, and to participate directly and actively in the evolution of environmental policy related to particulate matter.

The Center for Computational Finance’s mission is to improve the interaction between academic research and the finance industry.

The Center for Macromolecular Engineering’s goals are to enhance the benefits of polymer science to society by developing new methods to prepare advanced polymer materials, train and develop tomorrow’s scientists, and transfer technology to industry.

The Center of Nano-enabled Device and Energy Technologies’ mission is to work on real-world problems that can be solved potentially with appropriate nano-enabled technologies.
The Center for the Neural Basis of Cognition is a joint program between Carnegie Mellon University and the University of Pittsburgh. It synthesizes the disciplines of basic and clinical neuroscience, cognitive psychology, and computer science, combining neurobiological, behavioral, computational, and brain imaging methods.

The Center for Nonlinear Analysis was established in 1991. A special focus for applications emphasizes new and innovative methods to study contemporary issues in materials science. The center has created a vigorous environment for collaboration among mathematical and allied scientists.

The Center for Nucleic Acids Science and Technology is a community of Carnegie Mellon scientists and engineers unified by interests in the chemistry, biology, and physics of DNA, RNA, and PNA (peptide nucleic acid).

The Institute for Green Science has been established as a research, education, and development center in which a holistic approach to sustainability science is being developed. The focus of the institute is in three areas: renewable energy technologies, chemical feedstocks, and benign alternatives to polluting technologies.

The Molecular Biosensor and Imaging Center uses an interdisciplinary approach to develop reagents, microscopes, and imaging tools and applies them to the investigation of fundamental problems in biology and biotechnology.

The Pittsburgh NMR Center for Biomedical Research is a joint program between Carnegie Mellon University and the University of Pittsburgh. It is supported as a Biotechnology Resource Center by the National Institutes of Health.

The Pittsburgh Supercomputing Center provides information on advanced scientific computing for engineering and research.

The Lane Center for Computational Biology seeks to realize the potential of machine learning for expanding our understanding of complex biological systems. A primary goal of the Center is to develop computational tools that will enable automated creation of detailed, predictive models of biological processes, including automated experiment design and data acquisition.

First Year for Science Students

An MCS education is based on a broad foundation in the sciences: two semesters each of calculus and physics and one semester each of biology, chemistry and computer science. This foundation corresponds to the following courses required for all MCS students.

- 03-121 Modern Biology 9
- 09-105 Introduction to Modern Chemistry I 10
- 15-110 Principles of Computing 10
- or 15-112 Fundamentals of Programming and Computer Science 10
- or 02-201 Programming for Scientists 10
- 21-120 Differential and Integral Calculus 10
- 21-122 Integration and Approximation 10
- or 21-124 Calculus II for Biologists and Chemists 10
- 33-111 Physics I for Science Students 12
- 33-112 Physics II for Science Students 12

In the first year, students take two semesters of calculus, 21-120 Differential and Integral Calculus and 21-122 Integration and Approximation or 21-124 Calculus II for Biologists and Chemists. They also take three of the remaining five science core courses. The other two science core courses are completed by the end of the junior year. Additional courses in the first year include one course from the intended major; humanities, social sciences or fine arts courses; and Computing @ Carnegie Mellon, a course that introduces students to the computing environment and ethics of computing at Carnegie Mellon.

With this broad science background, a student is prepared to undertake any of the degree programs offered by the college when selecting a major at the end of the first year.

Fall Semester 41-50 units

- 21-120 Differential and Integral Calculus 10
- xx-xxx Science Core Course 9-12
- xx-xxx Science Core Course 10
- 76-101 Interpretation and Argument 9
- 99-101 Computing @ Carnegie Mellon 3
- xx-xxx Optional First-Year Seminar or Discovery-Based Lab 3-6

Spring Semester 43-53 units

- 21-122 Integration and Approximation 10
- or 21-124 Calculus II for Biologists and Chemists 10
- xx-xxx Departmental Elective from Intended Major 9-12
- xx-xxx Humanities, Social Sciences, or Fine Arts Course 9
- xx-xxx Optional Free Elective Course or Discovery-Based Lab 6-9
- xx-xxx Optional First-Year Seminar 3

Notes:

1. Departmental electives from the intended major are as follows:
   - Biological Sciences or Chemistry: 09-106 Modern Chemistry II (10 units)
   - Mathematical Sciences: 21-127 Concepts of Mathematics (10 units)
   - Computer Science: 03-126 Concepts of Mathematics (10 units)
   - Physics: 33-104 Experimental Physics (9 units)

2. A free elective is any Carnegie Mellon course. However, a maximum of nine units of physical education, military science and/or STUCO courses may be taken as free electives in any MCS degree program. Credit earned for physical education, military science and STUCO courses will not be calculated in a student’s GPA.

3. Students who enter with advanced placement credits will follow a similar schedule with modifications for their AP work.

MCS First-Year Laboratory Courses

In addition to the basic schedule that was outlined above, students have the option to take one of the following 4 or 6 unit elective inquiry-based laboratory courses:

- 03-115 Phage Genomics Research 6

The Department of Biological Sciences offers a two-semester research course in bacteriophage genomics. If you are interested in biological research, this course may be ideal for you. Genomics research combines experimental and computational approaches for large-scale analysis of the biological information contained in DNA sequences. The most abundant biological entities are bacteriophages. Their enormous diversity and number make bacteriophages important models for the study of gene structure, function and regulation, population genetics and evolution. This program is part of a national project sponsored by the Howard Hughes Medical Institute at selected institutions.

- 03-126 Cellular Response to the Environment 4

This laboratory course provides a multifaceted view of the cell, with the opportunity for new discovery, through microscopic imaging of a cell’s response to environmental changes. We will identify yeast gene products that undergo changes in expression or subcellular localization after simple environmental perturbations or drug treatments. Students will be trained in basic molecular biological methods, including recombinant DNA manipulation, and basics of functional genomic resources.

Humanities, Social Sciences, and Fine Arts Requirements

All candidates for the bachelor’s degree must complete a minimum of 72 units offered by the Dietrich College of Humanities and Social Science and/ or the College of Fine Arts. These courses for MCS students are to meet the following distribution requirements:

A. Designated Writing Course (9 units)
- 76-101 Interpretation and Argument 9

B. Distributional Course Requirements (27 units)

Complete three courses, one each from Category 1, Category 2, and Category 3. Listed below are examples of courses that meet the requirement for each category. Students wishing to substitute a course that is not listed should meet with their advisor.

Category 1: Cognition, Choice and Behavior

- 80-100 Introduction to Philosophy 9
- 80-130 Introduction to Ethics 9
- 80-150 Nature of Reason 9
- 80-180 Nature of Language 9
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80-208 Critical Thinking 9
80-220 Philosophy of Science 9
80-221 Philosophy of Social Science 9
80-230 Ethical Theory 9
80-241 Ethical Judgments in Professional Life 9
80-270 Philosophy of Mind 9
80-271 Philosophy and Psychology 9
80-312 Philosophy of Mathematics 9
85-102 Introduction to Psychology 9
85-211 Cognitive Psychology 9
85-221 Principles of Child Development 9
85-241 Social Psychology 9
85-251 Personality 9
85-261 Abnormal Psychology 9
85-390 Human Memory 9
88-120 Reason, Passion and Cognition 9

Category 2: Economic, Political and Social Institutions

19-101 Introduction to Engineering and Public Policy 12
36-303 Sampling, Survey and Society 9
70-332 Business, Society and Ethics 9
70-420 Entrepreneurship for Scientists 9
73-100 Principles of Economics 9
79-203 Social and Political Change in 20th Century 9
79-205 20th Century Europe 9
79-221 Development and Democracy in Latin America 9
79-245 Capitalism and Individualism in American Culture 9
79-246 Industrial America 9
79-252 Recent U.S. History, 1945-Present 9
79-316 Trajectories in Photography: Prehistory to 1945 9
79-330 Medicine and Society 9
79-331 Body Politics: Women and Health in America 9
79-335 Drug Use and Drug Policy 9
79-340 Juvenile Delinquency and Film: From *Blackboard Jungle* to "The Wire" 9
79-341 The Cold War in Documents and Film 9
79-374 American Environmental History: Critical Issues 9
79-377 Food, Culture, and Power: A History of Eating 9
80-135 Introduction to Political Philosophy 9
80-136 Social Structure, Public Policy & Ethics 9
80-226 Revolutions in Science 9
80-235 Political Philosophy 9
80-245 Medical Ethics 9
80-276 Philosophy of Religion 9
80-341 Computers, Society and Ethics 9
80-344 Management, Environment, and Ethics 9
85-241 Social Psychology 9
88-104 Decision Processes in American Political Institutions 9
88-110 Experiments with Economic Principles 9
88-205 Comparative Politics 9
99-238 Materials, Energy and Environment 9
79-268 World War I: The Twentieth Century’s First Catastrophe 9

Category 3: Cultural Analysis

57-173 Survey of Western Music History 9
57-209 The Beatles 9
76-227 Comedy 9
70-342 Managing Across Cultures 9
76-232 African American Literature 9
76-239 Introduction to Film Studies 9
76-241 Introduction to Gender Studies 9
79-104 Global Histories 9
79-202 Flesh and Spirit: Early Modern Europe, 1400-1750 9
79-205 20th Century Europe 9
79-207 Development of European Culture 9
79-221 Development and Democracy in Latin America 9
79-225 West African History in Film 9
79-229 Origins of the Arab-Israeli Conflict, 1880-1948 9
79-230 Arab-Israeli Conflict and Peace Process since 1948 9
79-235 Caribbean Cultures 9
79-240 The Development of American Culture 9
79-241 African American History: Africa to the Civil War-American History I 9
79-242 African American History: Reconstruction to the Present-American History II 9
79-255 Irish History 9
79-261 Chinese Culture and Society 9
79-265 Russian History: From the First to the Last Tsar 9
79-281 Introduction to Religion 9
79-297 Dilemmas and Controversies in Anthropology 9
79-307 Religion and Politics in the Middle East 9
79-310 Religions of China 9
79-311 Introduction to Anthropology 9
79-345 The Roots of Rock and Roll, 1870-1970 9
79-350 Early Christianity 9
79-368 Poverty, Charity, and Welfare 9
80-100 Introduction to Philosophy 9
80-250 Ancient Philosophy 9
80-251 Modern Philosophy 9
80-253 Continental Philosophy 9
80-254 Analytic Philosophy 9
80-255 Pragmatism 9
80-261 Empiricism and Rationalism 9
80-276 Philosophy of Religion 9
82-xxx Any Course Offered by Modern Languages

C. Elective Course Requirements (36 units)

Complete non-technical courses totaling 36 units from DC, CFA, and Tepper. These can include language courses and music courses, for instance. In this category, you have the freedom to design how you want to structure your remaining general education requirements. For example, you can use these electives to build a depth sequence of 2-4 courses in a particular area or you can take courses from different areas or some combination of each.

Check our web site for courses from DC, CFA, and Tepper that may NOT be used (http://www.cmu.edu/mcs/undergrad/advising/hss-finearts/deletions.html) to satisfy these requirements because they are too technical in nature, plus a list of courses in other colleges (including SCS, CIT, Tepper, and Heinz College) that do satisfy these requirements (http://www.cmu.edu/mcs/undergrad/advising/hss-finearts/additions.html).

Transfer into MCS Departments

Undergraduate students admitted to MCS can choose to pursue any major within MCS. This choice must be made prior to the first semester of the sophomore year (normally during the second semester of the first year) and does not require approval by any department.

Undergraduate students admitted to colleges other than MCS and wishing to transfer into an MCS department during their first year should consult with the MCS Associate Dean for Undergraduate Affairs. Students may submit an internal transfer request no earlier than mid-term of the spring semester of the first year. Potential transfer students must also have successfully taken 21-120 Differential and Integral Calculus and, depending on major choice, one of the following: 03-121 Modern Biology, 09-105 Introduction to Modern and Heinz College) that do satisfy these requirements (http://www.cmu.edu/mcs/undergrad/advising/hss-finearts/additions.html).

MCS undergraduate students beyond the first year wishing to transfer into another MCS department may do so if they are not on academic probation and if there is room in the department of their choice. If the demand for any department exceeds the space available, then the department will admit students based on a comparative evaluation of all applicants at the end of each semester, up to the limit of available space.

Undergraduate students not in MCS and wishing to transfer into a department in MCS beyond the first year will be considered for transfer on a space available/academic performance basis. An MCS department may refuse a transfer to a non-MCS student if there are space restrictions and/or if the student’s chance for success is determined to be questionable based on past academic performance.
Procedure for transfer of students from another university into an MCS department:
A student first applies through the Office of Admission. If the Office of Admission believes the applicant is acceptable, the student’s record is sent to the appropriate department for evaluation and a decision on acceptance. The MCS department head has the right to refuse to accept the student if there are space restrictions and/or if the student’s chance for success in the MCS department is determined to be questionable based on past academic performance.

Academic Standards and Actions

MCS Dean’s List
Each semester MCS recognizes those students with outstanding academic records by naming them to the Dean’s List. The criteria for such recognition are as follows:

Dean’s List
The student must earn a quality point average of at least 3.5 while completing a minimum of 36 factorable units and earning no incomplete grades.

Dean’s List High Honors
The student must earn a quality point average of at least 3.75 while completing a minimum of 36 factorable units and earning no incomplete grades.

Probation, Suspension, and Drop
In the first year, quality point averages below 1.75 in either semester invoke an academic action. For all subsequent semesters an academic action will be taken if the semester QPA or the cumulative QPA (excluding the first year) is below 2.00.
The progression below between probation, suspension, and drop is typical. However, for example, in unusual circumstances, MCS College Council may choose to suspend or drop a student without prior probation.

Proitation
The action of probation will be taken if:
• One semester of the first year is below 1.75 QPA.
• The semester QPA of a student in good standing beyond the first year is below 2.00.
The term of probation is one semester as a full-time student. First-year students are no longer on probation at the end of the second semester if their semester QPA is 1.75 or above.
A student is occasionally continued on probation who has had one semester on probation and is not yet meeting minimum requirements but whose record indicates that the standards are likely to be met at the end of the next semester of study.

Suspension
A student who does not meet minimum standards at the end of one semester of probation will be suspended.
A first-year student will be suspended if the QPA from each semester is below 1.75.
A student in the third or subsequent semester of study will be suspended if the semester factor or the cumulative factor (excluding the first year) is below 2.00 for two consecutive semesters.
The minimum period of suspension is one academic year (two semesters). At the end of that period a student may return to school on probation by:
• Receiving permission in writing from the Associate Dean of MCS.
• Completing a Return from Leave form from Enrollment Services.
• Providing transcripts and clearance forms if the student has been in a degree program at another college or university, even though academic credit earned will not transfer to Carnegie Mellon unless prior approval has been granted by the Associate Dean.

Employment within the university in non-student jobs is possible for students on academic suspension, subject to the hiring criteria of the hiring department. However, a student on academic suspension wishing to accept a job on campus must speak with the Associate Dean of the student’s college to ensure that the employment will not constitute a violation of the terms of suspension. The Associate Dean will generally allow such employment, in consultation with the Dean of Student Affairs. One employment benefit not available to students on academic suspension who accept a full-time job with the University is the option to take courses through tuition remission. The option to take courses becomes available only after the academic suspension is over.

Drop
This is a permanent severance from the Mellon College of Science. Students are dropped when it seems clear that they will never be able to meet minimum standards. A student who has been suspended and who fails to meet minimum standards after returning to school is dropped.
A student who has been academically dropped or academically suspended and who is not employed by the University must absent themselves from campus and is, for the term of the suspension, barred from all activities and affiliations that stem from one’s status as an enrolled student. These include registering or enrolling for courses, sitting in on classes, living in residence halls or Greek houses, membership and participation in student activities, and employment in student jobs. (NOTE: Exceptions to the restriction from student jobs for students on academic suspension will in general be granted for summer employment if the position was accepted prior to the decision to suspend.)

Graduation Requirements

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To be eligible to graduate, undergraduate students must complete all course requirements for their program with a cumulative Quality Point Average of at least 2.0 for all courses taken. For undergraduate students who enrolled at Carnegie Mellon as freshmen and whose freshman grades cause the cumulative QPA to fall below 2.0, this requirement is modified to be a cumulative QPA of at least 2.0 for all courses taken after the freshman year. Note, however, the cumulative QPA that appears on the student's final transcript will be calculated based on all grades in all courses taken, including freshman year. Some programs may have additional QPA requirements in order to graduate. Students are encouraged to confirm all graduation requirements with their academic advisor.

A minimum of 360 units must be completed. This will include the MCS Science Core Courses, humanities or fine arts requirements and all departmental course requirements.

Students will be required to meet the residency requirement and to have met all financial obligations to the university before being awarded a degree. The residency requirement is detailed in the Academic Regulations section of the catalog.

A student may seek permission to modify graduation requirements by petition to the MCS College Council.

Graduation Honors

There are two types of honors awarded at graduation.

University Honors
University Honors are automatically awarded to students who have earned a cumulative Q.P.A. of 3.5 or better after seven semesters.

College Research Honors
Please see the section “Mellon College of Science Research Honors” for information on how to qualify for College Research Honors.