MCS Interdisciplinary Courses

About Course Numbers:

Each Carnegie Mellon course number begins with a two-digit prefix that designates the department offering the course (i.e., 76-xxx courses are offered by the Department of English). Although each department maintains its own course numbering practices, typically, the first digit after the prefix indicates the class level: xx-1xx courses are freshmen-level, xx-2xx courses are sophomore level, etc. Depending on the department, xx-6xx courses may be either undergraduate senior-level or graduate-level, and xx-7xx courses and higher are graduate-level. Consult the Schedule of Classes *(*https://enr-apps.as.cmu.edu/open/SOC/SOCServlet*) each semester for course offerings and for any necessary pre-requisites or co-requisites.*

38-100 CATALYST - MCS First-Year Seminar

Fall and Spring: 3 units
The CATALYST seminar will equip transfer students to MCS, as well as those students who did not successfully complete the EUREKA seminar, with foundational knowledge, skills and perspectives that will support their development as emerging scientists and scholars. During the seminar, students will be presented with opportunities and experiences designed to help them frame how the MCS curriculum aspires to shape their evolving identities in the areas of scholar, person, professional and citizen, while also engendering a sense of excitement about science and scientific inquiry. The seminar will offer information and strategies that are employed both by successful students and by successful scientists in optimizing their approach to work and life, with a key focus on areas such as cognitive learning skills, research, teamwork, goal setting, time management, community engagement, ethics, resources and assessment. Additionally, the seminar will introduce students to the learning outcomes and requirements associated with the MCS core curriculum, with a particular emphasis on the self-directed ENGAGE courses and the role of the MyCORE e-portfolio system in documenting and framing student growth and development. Please note that this course WILL MEET TWICE over the course of the semester. These course meetings will be scheduled around the schedules of enrolled students.

38-101 EUREKA!: Discovery and Its Impact

Fall: 6 units
The MCS first-year seminar "EUREKA: Discovery and Its Impact" will equip new students with foundational knowledge, skills and perspectives that will support their development as emerging scientists. During the seminar, students will be presented with opportunities and experiences designed to help them frame how the MCS curriculum aspires to shape their evolving identities in the areas of scholar, person, professional and citizen, while also engendering a sense of excitement about science and scientific inquiry. The seminar will offer information and strategies that are employed both by successful students and by successful scientists in optimizing their approach to work and life, with a key focus on areas such as cognitive learning skills, research, teamwork, goal setting, time management, innovation, community engagement, ethics, resources and assessment. Additionally, the seminar will introduce first-year students to the learning outcomes and requirements associated with the MCS core curriculum, with a particular emphasis on the self-directed ENGAGE courses and the role of the e-portfolio system in documenting and framing student growth and development. Students who are enrolled in FADS are encouraged to enroll in a recitation section taught in the Mellon Institute.

38-110 ENGAGE in Service

All Semesters: 1 unit
ENGAGE in Service is a 1-unit course (9 hours of work, minimum requirement for a passing grade) designed to promote MCS students' direct engagement with community development and service learning. To fulfill this requirement, students must engage in a minimum of 9 hours of work devoted to a non-profit organization or organizations of their choice, 3 of which must have a direct benefit to the local Pittsburgh community. Students may complete the requirements anytime during their undergraduate years, but must register for the class during the semester that they intend to complete it, no later than their penultimate semester. Coursework includes documentation of service via completion of a form for each eligible activity that includes a time log, a description of the activity, the name and contact information for their supervisor and the supervisor's signature. In addition, during the last semester of the project/course students will prepare a 1-2 page reflective paper on the lessons learned from their immersion in the organization(s) and its (their) work. No pay or other compensation can be received, and, in special cases, students may petition for a waiver if they have completed another service-learning course at Carnegie Mellon.

38-132 DC Grand Challenge First-Year Seminar: Health in Unhealthy Times: Preventing, Ma

Intermittent: 9 units
We live in times when health is a major global concern, whether we worry about the development of novel Covid-19 mutations or continue to grapple with chronic illnesses such as obesity, diabetes, autoimmune diseases, cancer as well as depression and anxiety. Health and illness are key drivers of the human experience. And yet, health is fundamentally impacted by different human experiences. This first year Grand Challenges seminar will introduce students to core concepts in the life sciences that will enable them to better appreciate the scientific aspects of health. Building on this knowledge, students will then explore important psychosocial determinants, ethical constraints, and historical roots of health. Students will also develop a familiarity with the cultural and communicative skills required to argue about health, make decisions, and engage empathically with others in their health stories. We will read and discuss a broad variety of materials from medical science articles to social psychological experimental reports and personal or literary narratives about health. The course is divided into three components: health and preventative behaviors; coping with disruptive health experiences; managing chronic health challenges. We will provide a broad overview for each category, followed by a deep dive focused on particular health issues: diet and exercise (prevention); anxiety and depression (management); epidemics/Covid-19/cancer (disruption). Given the broad array of topics discussed, we believe these components can engage students on a personal level.

38-220 ENGAGE in the Arts

Fall and Spring: 2 units
ENGAGE in the Arts is part of Mellon College of Science's Core Curriculum. In this 2-unit full-semester course, students will broaden their knowledge of the fine arts, extend their global and cultural awareness, and facilitate the further development of their self-identity. Coursework requires that students attend 8 distinct arts events, two of which must engage with a culture different from one's personal cultural background. Students must complete at least one event from each of the following categories-1. exhibition 2. concert 3. theatrical performance 4. lecture with fine arts focus. In choosing events, students should be imbued with an attitude of openness to new ideas and a willingness to try something new. The course requires students to share, reflect, and document their participation in a variety of arts events by engaging with classmates and instructors through MyCORE, where they can upload coursework and find postings for events. Students may complete the requirements anytime during their undergraduate years, but must register for the class during the semester that they intend to complete it, no later than their penultimate semester.

38-230 ENGAGE in Wellness: Looking Inward

Spring: 1 unit
ENGAGE in Wellness: Looking Inward is a 1-unit mini-course that MCS students will enroll in the spring of the sophomore year, designed to give students a holistic understanding of their own personal wellness. The course is structured around the concept of a Wellness Wheel, a model for personal wellness that is used to describe the various areas that students should reflect upon when describing, and ultimately improving, their overall wellness. The MCS Wellness Wheel has nine components: intellectual, physical, emotional, spiritual, environmental, institutional or community, financial, social, and occupational health. During this first course, taken in the first mini of the sophomore year, students will select one of three areas on which to focus: intellectual, emotional or physical health. They will be asked to engage in a recursive, reflective process to assess their own level of wellness in this area, develop short-term goals for the next year and a statement of a longer-term goal in this area, identify possible resources and then choose activities that promote this aspect of wellness. Students should expect to devote 9-14 hours to the development and articulation of their plan in order to earn a passing grade. These hours are tied to completion of the requested assessments and not to the activities students' elect to pursue in fulfillment of their wellness plan. THIS COURSE IS FOR SOPHOMORES ONLY.

38-301 PROPEL

Spring: 6 units
PROPEL: Preparation, Readiness, and Optimization for Professional Excellence in Life - is a 6-unit seminar course that MCS students will enroll in the spring of their junior year. The course will leverage students' deepening disciplinary perspective in service of the development of competencies, skills and perspectives that are necessary to achieve professional excellence in today's society. The course will use traditional career development activities, such as interviewing, resume writing and networking, as a starting point for students to begin the process of reflecting on, and preparing for, their impending transitions into professional life. From there, the course will seek to expand students' conceptualization of the scientific workplace by exploring the interplay of science, innovation, public policy, entrepreneurism and business in professional settings today. The seminar will also equip students with significant insight into the ways in which global policy, societal and political forces, environmental issues and ethical considerations shape and influence the activity and research of working scientists. The course will offer additional experiences for students to refine their multidisciplinary teamwork and communication skills via small group projects focusing on the aforementioned course themes. Finally, "PROPEL" will include a formal academic advising component to ensure that all students are well positioned to complete the MCS core requirements and departmental requirements in the following year. THIS COURSE IS FOR QBS JUNIORS ONLY.

38-304 Reading and Writing Science

Spring: 6 units
This course is designed to hone the student's ability to read scientific writing and to communicate about scientific topics to audiences with different levels of interest and expertise in science. This course introduces students to frameworks for identifying the linguistic features of scientific argumentation in research papers across a range of scientific disciplines to improve their reading and writing of scientific content. The course also examines how scientific information changes when it is reported in the popular media and the effects these changes have on non-experts' understanding of science. Students will use these changes as a model for writing about scientific research to non-expert audiences. Finally, this course gives students the opportunity to practice science communication by creating oral presentations for their peers. The curriculum in this course is drawn from rhetoric: a discipline focused on the analysis and production of language, arrangement, and argument strategically designed to persuade an audience.

38-330 ENGAGE in Wellness: Looking Outward

Fall and Spring: 1 unit
ENGAGE in Wellness: Looking Outward is a 1-unit mini-course that MCS students will enroll in the fall of the junior year, designed to give students a holistic understanding of their own personal wellness. The course is structured around the concept of a Wellness Wheel, a model for personal wellness that is used to describe the various areas that students should reflect upon when describing, and ultimately improving, their overall wellness. The MCS Wellness Wheel has nine components: intellectual, physical, emotional, spiritual, environmental, institutional or community, financial, social, and occupational health. During this second course, taken in the first mini of the junior year, students will select one of three areas on which to focus: spiritual, environmental and institutional or community health. They will be asked to engage in a recursive, reflective process to assess their own level of wellness in this area, develop short-term goals for the next year and a statement of a longer-term goal in this area, identify possible resources and then choose activities that promote this aspect of wellness. Students should expect to devote 9-14 hours to the development and articulation of their plan in order to earn a passing grade. These hours are tied to completion of the requested assessments and not to the activities students' elect to pursue in fulfillment of their wellness plan. This course is intended for juniors only. THIS COURSE IS FOR JUNIORS ONLY.

38-402 MCS Leadership Development Seminar

Fall and Spring: 9 units
This course is designed for 3rd-year and 4th-year Mellon College of Science students committed to further developing their leadership skills and potential for sustained impact in the future. The course will be substantive and engaging, while also ideally thought provoking, edifying, and enjoyable. The course will build on the foundation of six key leadership pillars, identified to hone each students professional and personal development to serve others, and to seek out and nurture opportunities to heighten ones capacity as a person and leader who is: VISIONARY, with clear goals for yourself, your organizations and communities, and others in whose lives you are a part, including the broader society; ETHICAL, with core values and steadfastness in the face of competing objectives, and the resilience to deal with conflicts without moral compromise; ENGAGING, with empathy, attentive interpersonal attributes, outstanding formal and informal communication skills, and the capacity to inspire; TACTICAL, with an ability to operationalize big ideas and bring them to fruition, creating the ideal environment for individual and group success; TECHNICAL, based on your own high-level skill set and the ego strength for inclusion of others with complementary realms of expertise; REFLECTIVE, manifesting in the honest appraisal of personal and organizational success against metrics, and the ability to redirect based on assessment.

38-430 ENGAGE in Wellness: Looking Forward

Fall and Spring: 1 unit
ENGAGE in Wellness: Looking Forward is a 1-unit mini-course that MCS students will enroll in the fall of the senior year, designed to give students a holistic understanding of their own personal wellness. The course is structured around the concept of a Wellness Wheel, a model for personal wellness that is used to describe the various areas that students should reflect upon when describing, and ultimately improving, their overall wellness. The MCS Wellness Wheel has nine components: intellectual, physical, emotional, spiritual, environmental, institutional or community, financial, social, and occupational health. During this third course, taken in the first mini of the senior year, students will select one of three areas on which to focus: financial, social and occupational health. They will be asked to engage in a recursive, reflective process to assess their own level of wellness in this area, develop short-term goals for the next year and a statement of a longer-term goal in this area, identify possible resources and then choose activities that promote this aspect of wellness. Students should expect to devote 9-14 hours to the development and articulation of their plan in order to earn a passing grade. These hours are tied to completion of the requested assessments and not to the activities students' elect to pursue in fulfillment of their wellness plan. THIS COURSE IS FOR SENIORS ONLY.

38-613 Communication Skills and Professional Development for Scientists

Fall: 6 units
This course explores the theory and practice of science communication and career development for students enrolled in MS programs in the Sciences. Students will learn how to deliver excellent presentations, create figures, write clearly, and start to prepare for their future career acquiring professional development skills through a combination of in-class lectures and discussions, written assignments and oral presentations. Additionally, students will practice and refine interview skills and work on applications, including writing and customizing resume and cover letters. Other aspects of professional development, communication, and career planning will be taught. This course is for Masters students in Mellon College of Sciences.

38-701 Special Topics in Science & Math

Intermittent: 3 units
Special Topics in Science and amp; Math. Topics will vary depending on the semester and instructor. Please read the individual section descriptions for more information.