

Course Change Request

Date Submitted: 01/21/25 2:02 pm

Viewing: **COS 100 : Introduction to Science as a Profession**

Last approved: 07/26/22 5:40 am

Last edit: 01/21/25 2:02 pm

Changes proposed by: gcraft

Catalog Pages referencing this course

- [College of Science](#)
- [College of Science \(COS\)](#)

Select modification type:

- Simple**
- Substantial

Are you completing this form on someone else's behalf?

Yes

Requestor:

Name	Extension	Email
Kerin Hilker-Balkissoon	4133	khilkerb
<u>Kerin Anne Hilker-Balkissoon</u>	<u>4133</u>	<u>khilkerb@gmu.edu</u>

Effective Term: Spring 2025

Subject Code: COS - College of Science

Course Number: 100

Bundled Courses:

Is this course replacing another course? No

In Workflow

1. SC Curriculum Committee
2. SC Curriculum Committee
3. SC Assistant Dean
4. Assoc Provost-Undergraduate
5. Registrar-Courses
6. Banner

History

1. May 25, 2021 by Gregory Craft (gcraft)
2. Jul 26, 2022 by Jennifer Bazaz Gettys (jbazaz)

Equivalent Courses:

Catalog Title: Introduction to Science as a Profession

Banner Title: Intro to Science Professions

Will section titles vary by semester? No

Credits: 1-2

Schedule Type: Lecture

Hours of Lecture or Seminar per week: 2

Repeatable: May be only taken once for credit, limited to 3 attempts (N3) **Max Allowable Credits:** 6

Default Grade Mode: Undergraduate Regular

Recommended Prerequisite(s):

Recommended Corequisite(s):

Required Prerequisite(s) / Corequisite(s) (Updates only):

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(Course/Test Code	Min Grade/Score	Academic Level)	Concurrency?

Registration Restrictions (Updates only):

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

School(s):

Catalog

Description:

COS 100 introduces students to contemporary fields in science, computation, mathematics, and technology, while building essential interdisciplinary skills applicable to these academic and career pathways. Through interactive learning, students gain insights into diverse scientific disciplines and explore associated academic and professional expectations. Key topics include an overview of 21st-century career skills and professional development opportunities (such as internships and undergraduate research), creative problem-solving approaches, project design fundamentals, and introductory ethics. Students are introduced to principles of collegiate-level scholarly research, data visualization, systems and stakeholder mapping, and science communication, while engaging with academic unit representatives to explore relevant academic programs and professions. The course culminates in a capstone project, which involved addressing a global challenge. ~~COS 100 is designed to orient students to today's science disciplines and build interdisciplinary competencies across career pathways. Students will gain an understanding of scientific disciplines through weekly exploration of a scientific field and its associated academic and career pathways. Additional topics include: career readiness and professionalism, exploration of 21st century career skills, global problem-solving, and an introduction to fundamental principles in research and communication that span scientific research and practice. Students will apply their knowledge through individual and group projects and engage with science faculty and industry leaders across disciplines to meaningfully explore science programs and professions of interest, while developing and refining their academic and career goals. Students' course products are curated into a summative ePortfolio, which documents the cohesive analysis of the student's career research in a creative, multimedia format.~~

Justification:

What: Updating the course description and syllabus to reflect updates in course materials. A revised syllabus is attached, which also includes some updates to the student learning outcomes to reflect pedagogical enhancements to the content based on current STEM Education research.

Why: We are changing the description to reflect that disciplinary seminars are no longer weekly (due to faculty availability these are offered quarterly) and clarifying the professional skills covered in the course.

The learning objectives have also been revised to reflect some emerging STEM education pedagogical research.

Does this course cover material which crosses into another department?

No

Learning Outcomes:

Upon completion of the course, students will enhance their knowledge of science professions and competencies by:

1. Investigating academic and career pathways in science through exploration and in-depth research of academic success and career competency models and engagement with faculty and industry representatives, leading to the development of career planning products that support success in 21st Century science professions.
2. Understanding historical scientific knowledge creation and dissemination, including an overview of equity, colonialism and bias in science professions.
3. Exploring emerging models of scientific inquiry and global and intercultural problem-solving, including ethical engagement in research and practice within their selected scientific career pathway.
4. Communicating scientific content effectively across written, verbal, and digital platforms, within and across academic and professional environments.
5. Creating and critiquing scientific products (written, verbal, and digital) through individual and group analysis and application of concepts, practices, and results.
6. Effectively utilizing basic inquiry and evaluation measures (scientometrics, etc.) in interdisciplinary scientific research.

Will this course be scheduled as a cross-level cross listed section?

Attach Syllabus

[COS100Syllabus.pdf](#)

[2024 Template 2025 COS 100 Draft Syllabus.pdf](#)

Additional Attachments

Specialized Course Categories:

Additional Comments:**Reviewer Comments**



Fall 2025

COS 100 – Introduction to Science as a Profession

Fridays 10:30-11:20 am | In Person (76-100%) Room Location

Updated 11.20.24

Instructor	<p>Kerin Hilker-Balkissoon khilkerb@gmu.edu 703-993-4133 Office Hours: Mondays 4-5 pm (virtual) or by appointment</p>
Course Description	<p>This course is designed for College of Science (COS) students participating in the Mason Science Experience Residential Learning Community and Pathways in Science First Year Experience.</p> <p>COS 100 introduces students to contemporary fields in science, computation, mathematics, and technology, while building essential interdisciplinary skills applicable to these academic and career pathways. Through interactive learning, students gain insights into diverse scientific disciplines and explore associated academic and professional expectations. Key topics include an overview of 21st-century career skills and professional development opportunities (such as internships and undergraduate research), creative problem-solving approaches, project design fundamentals, and introductory ethics. Students are introduced to principles of collegiate-level scholarly research, data visualization, systems and stakeholder mapping, and science communication, while engaging with academic unit representatives to explore relevant academic programs and professions. The course culminates in a capstone project, allowing students to creatively apply and showcase their newly acquired skills toward addressing a complex, global challenge.</p>
Course Learning Outcomes	<ol style="list-style-type: none"> 1. Analyze contemporary fields in science, computation, mathematics, and technology to explore career pathways and support informed academic and career decision-making. 2. Demonstrate foundational skills in collegiate-level scholarly research and project development, including bibliometric analysis, data visualization, systems mapping, stakeholder analysis, and SWOT analysis. 3. Develop creative problem-solving approaches and project design fundamentals to address complex, interdisciplinary challenges. 4. Examine 21st century career competencies and professional development opportunities in scientific, computational, mathematical, and technological disciplines, including internships, undergraduate research, and micro-credentials, to prepare for academic and professional success. 5. Apply foundational ethical principles to evaluate historical and contemporary scenarios in research and practice, to support informed, unbiased decision-making in scientific and technological contexts. 6. Synthesize course concepts in a multi-phase capstone project to creatively address a complex, interdisciplinary challenge and effectively communicate findings using science communication principles.
Required Course materials	<p>There is no required textbook for this class. All required readings and materials are free and openly available. Please check the Learning Materials page of each Canvas module for links to course materials, and access research materials through Mason’s Library Services.</p> <p>Students should bring the following to all class sessions: paper, pen/pencil, and a device that supports research (tablet or laptop preferred).</p>
Course Methodology	<p>This is a seminar-focused class that simulates collaboration and communication expectations of the 21st Century STEM workplace. Lectures, hands-on activities, and other learning tools will be utilized. Students will work in pairs and groups for most class sessions. Strong performance requires engagement and participation in class activities.</p>

Use of AI Policy	Generative AI tools (Chat GPT, etc.) are powerful technologies that, when used appropriately, can enhance student learning and professional work. However, studies show that the newest AI tools currently demonstrate only 53% content accuracy, while university professors (who are experts in their fields), can identify AI-generated work with 94% accuracy. Mason utilizes technology to scan assignments for cheating, including AI generation. In this course AI tools may be used to support your project design and refine your work, similar to tutoring or writing center support. Use of AI tools on academic assignments outside of those areas require approval or will constitute cheating. Any form of cheating on an activity, project, or exam will result in zero points earned.
Extra Credit	The instructor provides numerous opportunities to earn extra credit throughout the semester. Extra credit opportunities may include carefully reviewing course content to find “If You Know, You Know” prompts embedded within assignment instructions, announcements, or other course materials. Some extra credit options are aligned with completing supplemental activities, such as LinkedIn Learning modules, while others are provided as attendance incentives (for example, attending class on weeks 6 and 8). While COS 100 is an easy A if you show up and do your work each week, extra credit can be used to make up one unexcused absence or give you a cushion on your overall course grade.
Plagiarism and the Internet	Global standards for plagiarism vary, but at Mason, utilizing someone’s intellectual property without permission or credit is a form of academic dishonesty. Copyright rules often apply when using online content. Information and graphics accessed electronically should also be cited, giving credit to the source. This includes, but is not limited to e-mail, newsgroup material, social media content, web-sourced content (including AI-generated content), personal communications, music, and graphics. Copyrighted materials require explicit permission for use. You should not utilize graphics or music (that you did not create) unless specifically designated as free or open-source content, or if you have paid for use (note – stock graphics from purchased software systems such as MS Office apps are “paid for” via the end user software license and do not require credit or citation). Review the Honor Code here.
Common Course Policies	Please carefully review course policy information relevant to all George Mason University courses is available at Academic Standards, Accommodations for Students with Disabilities, FERPA and Use of GMU Email Addresses for Course Communication, and Title IX Resources and Required Reporting: https://stearnscenter.gmu.edu/wp-content/uploads/24-Common-GMU-Syllabus-Policies.pdf
Students with Disabilities, Access Needs & Neurodivergence	As a supplement to the course policy “Accommodations for Students with Disabilities,” please note that students are responsible for registering with Disability Services and sharing their memorandum/discussing accommodations with their instructor <i>in advance</i> of receiving accommodations for any class meeting, assignment, or exam. Per the ADA, accommodations are provided from the day the memorandum is provided and are not retroactive. Note: The transition to college can be difficult for many students. Accommodations may be appropriate for students who experience new or worsening challenges that directly affect their academic performance, even if you did not require/receive accommodations in high school. Students with access needs are encouraged to contact ODS. Appropriate medical documentation of a physical, mental health, attention, or other condition is required.
Computer Requirements	Please note the technology requirements for the College of Science in your Canvas course menu—it contains details of minimum technology requirements.

Course Grading & Evaluation	Grading of all assignments is based on students' incorporation of the material covered in class. Assignments will generally be submitted through Canvas, unless otherwise noted by the course instructor. There is one midterm project (individual) and a small group final project in three parts that together comprise 35% of the total grade for the course.		
	Attendance & Engagement	35%	Extra credit/absence make-up credit is available for verified absences (due to illness or other compelling circumstances).
	Pre-Work Assignments	15%	
	Mandatory Event Attendance	15%	
	Summative Assignments (see below)	35%	
	Total	100%	
	<p>Recognizing that life happens, this class does not deduct late penalties for work submitted up to three weeks after the deadline – however, this extension does not apply beyond the final deadline at the end of the academic semester. Keeping up with classwork on a weekly basis is critical to a successful college experience. College students are generally expected to work independently for 2-3 hours outside of class for every credit hour/hour you spend in the classroom. For this course, you should plan for a total of 2 hours per week of work in addition to the one-hour class session.</p> <p>Unless otherwise stated, all assignments are due by the end of the course week. For the purposes of this course, a week is defined as beginning at 12:01 a Monday EST, and ending at 11:59 pm on the following Monday EST. These deadlines are not waived for holidays or non-instructional days.</p>		
	Grades will be assigned as follows:		
	A	93.00-100%	
	A-	89.50-92.99%	
	B+	87.00-89.49%	
	B	83.00-86.99%	
	B-	80.00-82.99%	
	C+	77.00-79.99%	
	C	73.00-76.99%	
	C-	70.00-72.99%	
	D	60.00-69.99%	
	F	0-59.99%	
Course Attendance, Virtual Participation (Zoom Sessions & Virtual Engagement, etc.), & Mandatory RLC/PS Event Attendance: 40%	<p>ATTENDANCE GRADE: As a seminar-style course, attendance is a critical component of COS 100. Students are expected to attend class sessions, virtual classes via Zoom, and group meetings with your COS 100 group. Each week's attendance is worth 10 additional points than the prior week's attendance, with absences later in the semester having greater impact toward your final grade. For virtual class sessions, students must respond to 100% of virtual prompts during class and leave the session promptly upon class completion. Students who fail to log off after the Zoom session concludes and do not respond to instructor prompts will be marked absent.</p> <p>If you and your roommate are attending a virtual class from one computer, you must notify the instructor via the chat, so you are both included in the attendance. Both students must also respond to all chat prompts. Students may miss two classes with no grade penalty. If you have extenuating circumstances (documentation generally required) please reach out to the course instructor.</p> <p>MANDATORY EVENTS: Students are expected to attend the following RLC/PS events in addition to class sessions. Students with verifiable conflicts may attend an alternative event (see Canvas for make up instructions):</p> <ul style="list-style-type: none"> • Mason Science Learning Community Kickoff: Friday, August XX, 4-5 pm • Thankful for Science: Monday, November XX, 5:45-7:00 pm • Student Choice: One RLC/PS STEM Meet Up (off-campus) or two on-campus engagement events. Attend all events and receive 100 extra credit points! 		

Pre-Class & Weekly Assignments: 25%	Pre-Class Assignments are pre-work that is critical to following that week's class theme, and are due immediately before your class session. Refer to the course schedule and in Canvas for details. Weekly Assignments are generally due on the Monday at the end of the course week (3 days after our class session).
Summative Projects: 35%	<ul style="list-style-type: none"> • Midterm: STEM Career Infographic – explore a STEM career of your choice through visual media, sharing key information about your career (data and statistics, tasks, education, etc.). • Final Part 1: STEM Challenge Project Plan & Concept/Systems Map • Final Part 2: STEM Challenge Video Essay <p>Additional information and detailed project instructions/rubrics are available on Canvas.</p>
Use of AI Policy	Generative AI tools (Chat GPT, etc.) are powerful technologies that, when used appropriately, can enhance student learning and professional work. However, studies show that the newest AI tools currently demonstrate only 53% content accuracy, while university professors (who are experts in their fields), can identify AI-generated work with 94% accuracy. Mason utilizes technology to scan assignments for cheating, including AI generation. In this course AI tools may be used to support your project design and refine your work, similar to tutoring or writing center support. Use of AI tools on academic assignments outside of those areas require approval or will constitute cheating. Any form of cheating on an activity, project, or exam will result in zero points earned.
Extra Credit	The instructor provides numerous opportunities to earn extra credit throughout the semester. Extra credit opportunities may include carefully reviewing course content to find “If You Know, You Know” prompts embedded within assignment instructions, announcements, or other course materials. Some extra credit options are aligned with completing supplemental activities, such as LinkedIn Learning modules, while others are provided as attendance incentives (for example, attending class on weeks 6 and 8). While COS 100 is an easy A if you show up and do your work each week, extra credit can be used to make up one unexcused absence or give you a cushion on your overall course grade.
Common Course Policies	Please carefully review course policy information relevant to all George Mason University courses is available at Academic Standards, Accommodations for Students with Disabilities, FERPA and Use of GMU Email Addresses for Course Communication, and Title IX Resources and Required Reporting: https://stearnscenter.gmu.edu/wp-content/uploads/24-Common-GMU-Syllabus-Policies.pdf
What to Do If You're Sick?	While class attendance is critical to course success, illnesses spread easily on campus. The best way to avoid spreading transmissible illnesses is by isolating when you are sick and/or wearing a high quality, tightfitting mask when you are ill. If you are mildly symptomatic but wish to attend class, I am happy to provide you with a mask. IF YOU ARE TOO SICK TO ATTEND: Email the course instructor as soon as possible and explain your situation. The instructor will assist you with creating a make-up plan for the COS 100 content you missed.
Need Help with this course, or anything else? If you encounter any difficulties in this course, or with academic, personal, or work issues, please reach out. I have been in your shoes and genuinely want to help. Use the Ask Your Instructor discussion forum, email, or come to office hours! Please don't wait until the end of the semester to ask for help - by then, it may be too late. In addition to your instructor, the Counseling Center, Learning Services, COS Learning Assistants, and your success coach are all committed to supporting you. Many workshops and counseling services are offered throughout the semester. Make use of the academic and personal opportunities available at Mason!	

COS 100 Course Schedule: Fall 2025 Draft

Class Week	Class Theme/Topic
Week 1:	21st Century Professional Competencies: Skills for STEM Careers that Don't Exist (Yet)
Week 2:	Scholarly Research - from AI to Zotero <u>Pre-assignment: Choose a scholarly STEM-focused article and bring it to class.</u>
Week 3:	STEM Academic & Career Pathways Expo (Seminar 1) <u>Pre-assignment: Research & prepare thoughtful questions for session presenters.</u>
Week 4:	Complex/Creative Problem-Solving & Visualizing Data <u>Career Research Midterm First Drafts Due</u>
Week 5:	Managing/Assessing STEM Projects and Mapping Systems and Stakeholders <u>Career Research Midterm Project Peer Review</u>
Week 6:	STEM Academic & Career Pathways Expo (Seminar 2) – <u>Pre-assignment: Research & prepare questions for presenters.</u>
Week 7:	Intro to STEM Challenge Project (Final Project): In-Class Group Collaboration Session: Project Kickoff Meetings <u>Career Research Midterm Projects Due</u>
Week 8:	Professional Development for STEM Careers: Undergraduate Research, Internships, MOOCs and Micro-Credentials <u>Part 1 of Final Project is Due: Groups submit Project Plans for Final Project</u>
Week 9:	STEM Professional Identity - Strengths, Networking, & Addressing Impostor Syndrome <u>Pre-assignment: Complete free StrengthsFinder assessment BEFORE class session.</u>
Week 10:	STEM Academic & Career Pathways Expo (Seminar 3) - <u>Pre-assignment: Prepare thoughtful questions for XX/XX class session</u>
Week 11:	Small Group Check-In Session: STEM Challenge Projects - <u>SWOT Analysis Due</u>
Week 12:	Intro to Research Ethics & Bias in STEM Research and Practice
Week 13:	STEM Academic & Career Pathways Expo (Seminar 4) <u>Pre-assignment: Research & prepare thoughtful questions for presenters. Final Project – Systems & Stakeholders Map Due</u>
Week 14:	<u>Thanksgiving Week:</u> Small groups work asynchronously to wrap up STEM Challenge final projects
Week 15:	Course Wrap-Up Final STEM Challenge Project Video Essays due XX/XX; <u>Your Video Essay Reviews due XX/XX.</u>