Course Change Request

New Course Proposal

Date Submitted: 12/09/20 9:59 am

Viewing: **COS 301 : Great Ideas in Science**

Last edit: 12/09/20 9:59 am

Changes proposed by: jbazaz

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

No

Effective Term: Spring 2021

Subject Code: COS - College of Science   **Course Number:**   301

Bundled Courses:

Is this course replacing another course?   Yes

Equivalent Courses:

Catalog Title: Great Ideas in Science

Banner Title: Great Ideas in Science

Will section titles vary by semester?   No

Credits: 3

Schedule Type: Lecture

Hours of Lecture or Seminar per week: 3

Repeatable: May be only taken once for credit, limited to 3 attempts (N3)   **Max Allowable Credits:**   9

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:**

Nontechnical introduction to ideas that have shaped the growth of science, from the building of Stonehenge to modern theories of the Big Bang. The idea behind each major advance is treated in its historical context, with special attention to its importance in mankind's understanding of the nature of the universe. Intended for nonscience majors; uses little mathematics.

Justification:

PROV 301 was original taught by Robinson Professors, and was thus assigned a PROV prefix. The course has recently (and is currently) being taught by a professor who works in the COS STEM Accelerator office, and given the broad scientific scope of the course, a COS prefix is more appropriate. PROV 301 is being inactivated.

We will work to gain Mason Core approval on this replacement for PROV 301 (a natural science overview course).

**Does this course cover material which
crosses into another department?**   No

Learning Outcomes:

Attach Syllabus

Mason_Undergrad_Syllabus_COS 301.pdf

**Additional
Attachments**

Staffing:

Continued teaching by Dr. Julia Nord.

**Relationship to
Existing Programs:**

This is a Mason Core course that would likely be fall into an elective category within degree programs.

**Relationship to
Existing Courses:**

Replacing PROV 301.

**Additional
Comments:**

**Reviewer
Comments**

Key: 16883

GEORGE MASON UNIVERSITY

	Syllabus
Course Information	COS 301 – Great Ideas in Science Location: Distance Education/Blackboard
Instructor	Please refer to your online course: https://mymasonportal.gmu.edu/ Office Hours by appointment.
Course Description	Nontechnical introduction to ideas that have shaped the growth of science, from the building of Stonehenge to modern theories of the Big Bang. The idea behind each major advance is treated in its historical context, with special attention to its importance in mankind's understanding of the nature of the universe. Intended for nonscience majors; uses little mathematics.
Course Objectives	Upon completion of the course, students will be able to: 1. Express the impact of scientific discoveries and principles on your health, safety, environment, society and chosen career. 2. Identify the scientific method and apply it to a variety of situations throughout your life 3. Identify and integrate the foundational principles of physics, astronomy, geology, chemistry, biology, mathematics and thermodynamics 4. Evaluate scientific claims by others 5. Proactively explore and continue learning about science 6. Act as an informed citizen in your communities and society
Course Methodology	The class format will combine readings, lectures, discussions, expert interviews, quizzes and other learning tools. The class will be interactive and require every student to be engaged in the classroom discussion and assignments. In addition to the lectures, screencasts and timely completion of assignments, every student will be expected to be an active participant and a dedicated individual applying what you learn to every element of the course work.
Required textbook(s) and/or materials	1. James Trefil and Robert Hazen, The Sciences: An Integrated Approach, 8th Edition. NY: Wiley, 2015. 2. Robert Hazen and James Trefil, Great Ideas of Science: A Reader in the Classic Literature of Science. San Diego: University Readers, 2009. Other readings as assigned.
Computer Requirements	**Hardware:** You will need access to a Windows or Macintosh computer with at least 2 GB of RAM and access to a fast and reliable broadband internet

	connection (e.g., cable, DSL). A larger screen is recommended for better visibility of course material. You will need speakers or headphones to hear recorded content and a headset with a microphone is recommended for the best experience. For the amount of Hard Disk Space required taking a distance education course, consider and allow for: 1. the storage amount needed to install any additional software and 2. space to store work that you will do for the course. If you consider the purchase of a new computer, please go to Patriot Tech to see recommendations. **Software:** Many courses use Blackboard as the learning management system. You will need a browser and operating system that are listed compatible or certified with the Blackboard version available on the myMason Portal. See supported browsers and operating systems. Log in to myMason to access your registered courses. Some courses may use other learning management systems. Check the syllabus or contact the instructor for details. Online courses typically use Acrobat Reader, Flash, Java, and Windows Media Player, QuickTime and/or Real Media Player. Your computer should be capable of running current versions of those applications. Also, make sure your computer is protected from viruses by downloading the latest version of Symantec Endpoint Protection/Anti-Virus software for free here. Students owning Macs or Linux should be aware that some courses may use software that only runs on Windows. You can set up a Mac computer with Boot Camp or virtualization software so Windows will also run on it. Watch this video about using Windows on a Mac. Computers running Linux can also be configured with virtualization software or configured to dual boot with Windows. Note: If you are using an employer-provided computer or corporate office for class attendance, please verify with your systems administrators that you will be able to install the necessary applications and that system or corporate firewalls do not block access to any sites or media types. **Course-specific Hardware/Software** Check the syllabus for your course or contact the instructor prior to the start of the course to find out about specific technical requirements for your class. Hardware or software required for your course or program may be available for purchase at Patriot Computers (the University's computer store that offers educational discounts and special deals).
Course Website	Blackboard 9.1 will be used for this course. You can access the site at http://mymasonportal.gmu.edu. Login and click on the "Courses" tab. You will see the COS 301 course. NOTE: Username and passwords are the same as your Mason email account.

	You must have consistent access to an internet connection in order to complete the assignments in this course through Blackboard (http://mymason.gmu.edu). Note the technology requirements in your Blackboard course menu—it contains details of minimum technology requirements.
Rules and Expectations	In correspondence/communication students will be expected to: a) Be professional and respectful in correspondence b) Make reasonable requests of the instructor. We will be happy to clarify course material and answer legitimate questions; however, please exhaust other information sources (e.g., syllabus, Blackboard) for answering your question before contacting me and remember, "Poor planning on your part does not constitute an emergency on my part" In regard to honesty in work students will be expected to: a) Review the University integrity and honesty policies in the student handbook for guidelines regarding plagiarism and cheating (summarized below). I will gladly clarify my stance on any questionable or "grey area" issues you may have. b) Refrain from dishonest work as it will receive a minimum penalty of zero on the assignment and a maximum penalty of a zero for the course with a report to the Honor committee. The GMU Honor Code requires that faculty submit any suspected Honor Code violations to the Honor Committee. Therefore, any suspected offense will be submitted for adjudication.
Mason Honor Code	**The complete Honor Code is as follows:** *To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University community and with the desire for greater academic and personal achievement, we, the student members of the university community, have set forth this honor code:* **Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.** *(From the Catalog – catalog.gmu.edu)*
Cheating Policy	Any form of cheating on an activity, project, or exam will result in zero points earned. "Cheating" includes, but is not limited to, the following: reviewing others' exam papers, having ANY resources utilized when not allowed, collaborating with another student during an individual assignment. If you have questions about when the contributions of others to your work must be acknowledged and appropriate ways to cite those contributions, please talk with the professor or utilize the GMU writing center.
Plagiarism and the Internet	Copyright rules also apply to users of the Internet who cite from Internet sources. Information and graphics accessed electronically must also be cited, giving credit to the sources. This material includes but is not limited to e-mail (don't cite or forward someone else's e-mail without permission), newsgroup material, information from Web sites, including graphics. Even if you give credit, you must get permission from the original source to put any graphic that you did not create on your web page. Shareware graphics are not free. Freeware clipart

	is available for you to freely use. If the material does not say "free," assume it is not. Putting someone else's Internet material on your web page is stealing intellectual property. Making links to a site is, at this time, okay, but getting permission is strongly advised, since many Web sites have their own requirements for linking to their material. Review the Honor Code here.
Individuals with Disabilities	Students with documented disabilities should contact the Office of Disability Services (703) 993-2474) to learn more about accommodations that may be available to them. *(From the 2019-2020 Catalog – catalog.gmu.edu)*
Academic Integrity and Inclusivity	This course embodies the perspective that we all have differing perspectives and ideas and we each deserve the opportunity to share our thoughts. Therefore, we will conduct our discussions with respect for those differences. That means, we each have the freedom to express our ideas, but we should also do so keeping in mind that our colleagues deserve to hear differing thoughts in a respectful manner, i.e. we may disagree without being disagreeable. http://oai.gmu.edu/
Academic Integrity and Recorded Lectures	Lectures given in this class are my intellectual property. For your learning, it is best to transcribe the material during or after the lecture to clarify your thoughts. I will say things in class that may not be correct or may not be my personal views. I will do this to start a conversation or get a response. Please do not transcribe or use things said in the lecture by other students as you do not have their approval. Maybe paraphrase their question if you need it to connect to a thought. It is probably illegal to post my notes, PowerPoints and recordings to the internet or on any other forum. The University and I own the rights to this material.
Student Privacy Policy	George Mason University strives to fully comply with FERPA by protecting the privacy of student records and judiciously evaluating requests for release of information from those records. Please see George Mason University's student privacy policy https://registrar.gmu.edu/students/privacy/
E-Mail Policy	Web: masonlive.gmu.edu Mason uses electronic mail to provide official information to students. Examples include notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback. Students are responsible for the content of university communication sent to their Mason e-mail account and are required to activate that account and check it regularly.

	Students are also expected to maintain an active and accurate mailing address in order to receive communications sent through the United States Postal Service. *(From the 2017-18 Catalog – catalog.gmu.edu)*
Multitasking	Science research shows that humans are not good at multitasking, in fact several peer reviewed journals state that "multitasking results in poorer learning and poorer performance". If you refrain (during this and your other classes) from using phones and computers for text messages, Facebook, internet searching, shopping, IM and other related activities during reading, lectures or videos - you will be able to remember it better. I isolate myself to teach, my daughter walks and re-listens to lectures. Research also shows that information is easier to recall if you take notes by hand. The interactions between your brain and writing creates neural pathways (memories). Multitasking Increases Study Time, Lowers Grades Make it our time: In class multitaskers have lower academic performance Attention, Students: Put Your Laptops Away The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking
Course Grading & Evaluation	Theme Quizzes (6) 100 points each. 38% of total grade Discussions Activities (18) 40 points each. 46% of total grade. Ask the Expert (6) 40 points each. 16% of total grade. 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%
Mason Core Natural Science	The Mason Core natural sciences courses engage students in scientific exploration; foster their curiosity; enhance their enthusiasm for science; and enable them to apply scientific knowledge and reasoning to personal, professional and public decision-making.
Course Information	The discoveries of science, as well as their technological applications, play major roles in your life—roles that impact your family, your health, your job,

	and much more. It is vital that every citizen understand the nature of science, and how scientists arrive at conclusions regarding health, safety, and the environment. The central objective of this course is to introduce to you the most important principles of science, with an emphasis on understanding science at a level that will allow you to appreciate varied natural phenomena in your daily life, as well as reports on the TV and via the internet. This course is designed to serve the educational needs of people who will not be scientists but who need some knowledge of science to function as citizens. I will avoid complex vocabulary and mathematics, while emphasizing core principles, as well as the nature of scientific questions, the importance of scientific facts, and the process of scientific discovery as a way of knowing. This course, an integral part of the Mason Core program, has been designed to empower each of you with the ability to continue learning about science throughout your lifetime and to integrate scientific ideas into other aspects of your life. Scientific principles affect all of us, all the time. You don't have to be a scientist to appreciate the profound importance of science in everyday life and to be a part of the never-ending adventure of scientific discovery. This course was designed by Dr Robert Hazen and Dr James Trefil, both Mason Robinson Professors. and based on "Great Ideas in Science". Science forms a seamless web of knowledge about the universe, and a few overarching concepts (the "great ideas") unify astronomy, biology, chemistry, geology, and physics.
Discussions	Your challenge is to immerse yourself in the topics and perspectives presented in the course. You will want to be able to comment on the discussion topics with authority. You are encouraged to make notes on your own thoughts about the various concepts and issues and consider possible issues/outcomes. Your posts should be to the point and include sufficient technical detail for others to respond. You should present your opinions but justify them with facts and proper sources. What did you disagree with and why, or not understand? **Initial/Original Post** Please post what you view as the appropriate responses to the above prompts. Your initial post should be 250-300 words. Please provide response with a clear, well-formulated thesis; sentence structure, grammar, punctuation, and spelling count. Support all posts with appropriate rationale and citations from readings; appropriately document sources. **Responding to Others** Responses to at least two classmates' postings should be approximately 200 words and should be thoughtful, substantial, polite and more extensive than a simple "well done" phrase or "I agree." Consider points of agreement, disagreement, assumptions, and value judgments. You will be able to respond to others after you submit your initial post.

	Instructions Each student will make at least one original post by Thursday 11:59 PM, EST, and react to at least two of your peers' posts by Sunday 11:59 PM, EST.
Quizzes	You will complete six (6) quizzes in this course; one per theme. Instructions for opening the quiz and using Respondus can be found in the course.
Ask the Expert	During each theme, your instructor will invite an expert in the field to share their experience. You are required to attend or view this interview and answer the assigned reflection questions about the interview.
Time Management	Unless otherwise stated, all assignments are due by the end of the week in which they are assigned. For the purposes of this course, a week is defined as **beginning at 12:01 am each Monday EST**, and **ending at 11:59 pm on the following Sunday EST.** To help you manage your schedule and time to complete the assignments in this course, please follow the recommended timeline below. If you have a question or concern or encounter a problem about an assignment, please contact me immediately so we can discuss and work out a resolution.

Need Help?
Utilize the "Course Q&A" discussion forum or email your instructor directly.

Weeks	Lessons	Assignments
Week 1	**Lesson 1:** Theme One	• Review and Process all of the Lesson 1 Learning Materials (readings, faculty lectures and videos) • Participate in the Lesson 1 Discussion • Complete the Lesson 1 Assignment
Week 2	**Lesson 2:** Theme One	• Review and Process the Lesson 2 Learning Materials • Participate in the Lesson 2 Discussion • Complete the Lesson 2 Assignment • Participate in the Ask the Expert #1 Discussion • Complete the Theme 1 Quiz
Week 3	**Lesson 3:** Theme Two	• Review and Process the Lesson 3 Learning Materials • Participate in the Lesson 3 Discussion
Week 4	**Lesson 4:** Theme Two	• Review and Process the Lesson 4 Learning Materials • Participate in the Lesson 4 Discussion • Participate in the Ask the Expert #2 Discussion • Complete the Theme 2 Quiz
Week 5	**Lesson 5:** Theme Three	• Review and Process the Lesson 5 Learning Materials • Participate in the Lesson 5 Discussion
Week 6	**Lesson 6:**	• Review and Process the Lesson 6 Learning Materials

	Theme Three	• Participate in the Lesson 6 Discussion
Week 7	**Lesson 7:** Theme Three	• Review and Process the Lesson 7 Learning Materials • Participate in the Lesson 7 Discussion • Participate in the Ask the Expert #3 Discussion • Complete the Theme 3 Quiz
Week 8	**Lesson 8:** Theme Four	• Review and Process the Lesson 8 Learning Materials • Participate in the Lesson 8 Discussion
Week 9	**Lesson 9:** Theme Four	• Review and Process the Lesson 9 Learning Materials • Participate in the Lesson 9 Discussion • Participate in the Ask the Expert #4 Discussion • Complete the Theme 4 Quiz
Week 10	**Lesson 10:** Theme Five	• Review and Process the Lesson 10 Learning Materials • Participate in the Lesson 10 Discussion
Week 11	**Lesson 11:** Theme Five	• Review and Process the Lesson 11 Learning Materials • Participate in the Lesson 11 Discussion
Week 12	**Lesson 12:** Theme Five	• Review and Process the Lesson 12 Learning Materials • Participate in the Lesson 12 Discussion • Participate in the Ask the Expert #5 Discussion • Complete the Theme 5 Quiz
Week 13	**Lesson 13:** Theme Six	• Review and Process the Lesson 13 Learning Materials • Participate in the Lesson 13 Discussion
Week 14	**Lesson 14:** Theme Six	• Review and Process the Lesson 14 Learning Materials • Participate in the Lesson 14 Discussion • Participate in the Ask the Expert #6 Discussion • Complete the Theme 6 Quiz
Week 15	**Lesson 15:** Finals Week	• No assignments due