

SCEN101: Contemporary Issues in Science: Cosmos, Earth, & Humanity

Fall 2020, 3 Credits, MWF 10:20 am – 11:10 am, 21CCB Small Arena

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Course description: Science for citizens. Interdisciplinary survey of contemporary issues in the science of our universe (cosmos), Earth, and humanity, including: the big bang, evolution, genetics, vaccines, and drugs. Future outlook on humanity, including: artificial intelligence, cryptography, and cybersecurity. Critically analyze science presented in the news, on TV, and on social media. Ethical implications of research. TED talk lecture format, interspersed with demos and discussion. Readings from both popular (magazines, newspapers, etc) and science sources.

Grading: Grading will be based on the following criteria. Please see more details for each section below.

	Total Points	Percent
Online Homework	150	15%
Class Participation	150	15%
Packback Discussion Board	250	25%
Exams (2)	200	20%
Final project	250	25%
TOTAL	1000	100%

Grades will be assigned as follows: A: $\geq 90\%$; B: 80 - 89%; C: 70 - 79%; D: 60 - 69%; F: $<60\%$. *These grade cut-offs may be lowered, but they will not be raised.*

Learning outcomes: By the end of the course, you should be able to:

1. Identify well established facts and theories in science
2. Outline the steps in the scientific method
3. Interpret observations, statistical data, estimates, results summarized in graphs and tables, and conclusions in popular science (*empirical and quantitative skills*)
4. Analyze a source's use of statistics to evaluate its reliability (*empirical and quantitative skills*)
5. Evaluate the quality of a scientific claim (*critical thinking*)
6. Compare how science is presented in the media to original scientific sources in order to determine if the science presented is accurately discussed (*critical thinking*)
7. Classify science, including that presented in newspapers, on websites, in popular science books, etc. as either science or non-science (*critical thinking*)
8. Assess scientific findings that impact your current life and future, to make well informed decisions on a personal level (*critical thinking*)
9. Communicate science by citing data that supports conclusions with scientifically and statistically accurate information (*communication*)
10. Build teamwork skills by communicating with a group of your peers a recent scientific finding through a video presentation to a general audience (*teamwork and communication*)

Required Texts: Course reader (includes compilation of both popular and science writing) & *Science Matters* by Hazen and Trefil

Course questions: Course content questions can be directed to faculty listed above. All other questions should be sent to SCEN100@gmail.edu.

Online Homework:

Online homework (**150 points, 15%**) is intended to help familiarize you with the background knowledge required to understand certain lectures and class discussions as well as assess empirical and quantitative skills learned throughout the course. Reading from *Science Matters* as well as other sources (course reader, journal articles, review articles, textbook excerpts) will be assigned weekly. Homework assignments will be presented in brief (5-15 questions), mostly multiple-choice format, and will be based on comprehension of the assigned reading. Homework will be due 30 minutes before the beginning of each class session. **Late homework will get an automatic 50% deduction.**

Class participation:

Participation (**150 points, 15%**) will be monitored by "short quizzes," which will be administered during class periods only, using the Learning Catalytics (LC) system in conjunction with a cell phone, smart phone, laptop, or ipod Touch. These quizzes are designed to enhance your engagement with the course material and will be graded as participation ONLY (you will receive full credit regardless of your answer). **There are NO make-up opportunities for missed LC activities.** To register for LC, visit:

<https://www.pearson.com/us/higher-education/products-servicesteaching/learning-engagement-tools/learning-catalytics.html>

or follow the instructions posted on eCampus under Course Content. We strongly suggest that you purchase a 12-month subscription, as LC will be used in both SCEN101 and SCEN102.

Bonus points:

Bonus point opportunities will be provided each class. If you answer the bonus point questions correctly, you will receive extra credit towards your **Participation** score. A maximum of **50 bonus points** will be given over the course of the semester. The LC bonus points will be entered/updated in eCampus prior to mid-term grades and prior to the final exam.

Packback Discussion Board:

Packback Questions is an online curiosity community where you can be fearlessly curious and ask BIG questions about how what we're studying relates to life and the real world.

Writing amazing questions and answers on Packback will:

- Help you develop communication skills through writing, which is necessary for any career path
- Reinforce the imperative skill of justifying thoughts and claims with credible evidence - and then citing the evidence!
- Enhance critical thinking sought out by employers
- Deepen your understanding of the course content

Our goal for using Packback is to foster discussion about concepts presented in class. The Packback discussion board serves as a starting point on discussion days designated in the course schedule. Each week, specific paper(s) will be provided to help inspire the discussion.

Your participation on Packback will count towards **25% (250 points)** of your final grade. **In order to receive your points per week, you 1) must post 1 Question and 2 Answers per week and 2) must maintain an average curiosity score of 50/100.** There will be a **Sunday 11:59 PM deadline** for submissions in your community each week. *While there is no official deadline to post questions, we expect that questions will be posted by Wednesday each week.* **There are NO make-up opportunities for missed Packback activities.**

Before you start posting, be sure to read the [Community Guidelines](#) found in the tutorial on Packback. If your post doesn't follow the Packback Community Guidelines, there is a chance it will be removed and you won't receive points for that post. More information on Packback will be provided the first week of class. **Note:** it takes 24 hours for the Packback team to moderate a post and send a coaching email. If by any reason your post is moderated because it does NOT meet the Community Guidelines, you will need to edit and re-publish your post to receive credit for the week. This is why it is important that you complete your Packback questions and responses far before the deadline in case your post is moderated.

Exams:

Progress towards learning outcomes pertaining to empirical and quantitative skills, as well as critical thinking, will be assessed by two 50-minute multiple choice exams administered during class periods. Each exam will count 10% (100 points) towards the final grade. A portion of each exam will test the acquisition of fundamental knowledge from the course. The primary portion of each exam will consist of questions based on reading short passages. These are intended to measure your ability to interpret the information presented in the readings and evaluate any conclusions made.

Final Project:

In lieu of a final exam, you will be producing a short video demonstrating the communication and critical thinking skills that you have learned in the course. In groups of 4-5, you will pick a contemporary science topic related to the course content and present this topic in the form of a short 10-15 minute video. In the video, you should answer the following questions:

1. What is the new discovery? Why is it important?
2. Provide any background information (definitions) needed to understand the science.
3. What data (evidence) was collected and how does it support conclusions?
4. What impact do the conclusions have on our everyday lives?

Your presentations should be supported by multiple reliable sources, published in both popular science and scientific articles, from 2015 to present. While all videos will be uploaded to a private course YouTube channel, up to 20 of the highest scoring videos will be made visible to the public. As such, your videos should be aimed at a general audience. You will be assessed on the following criteria:

1. Content
2. Organization
3. Style/Quality of the video
4. Delivery
5. Teamwork

The final project is worth **25% (250 points)** of your final grade and is **due on eCampus November 18, at midnight**. A rubric and more detailed instructions about the project can be found on eCampus.

Late project assignments will receive a 10% reduction the first 24 hours late. Each subsequent 24 hours will result in a 5% grade reduction. Assignments turned in more than 7 days late will receive a zero. Weekends count towards the late penalty.

Attendance and Make-up Policy:

Attendance is required and will be monitored by participation using LC (see above). If you are going to miss a class, exam, or final presentation with a University excused absence, contact SCEN100@gmail.edu in order to arrange the makeup of missed work. Documentation will be required in most instances for University excused absences. See <http://student-rules.tamu.edu/rule07> to verify that your absence is excusable. If prior contact is impossible, the student must provide notification by the end of the second working day after the absence. Any misinformation included on the form or an inability to verify the information will lead to sanctions under the Aggie Code of Honor.

Americans with Disabilities Act (ADA) Policy Statement:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>.

Academic Integrity Statements:

“An Aggie does not lie, cheat, or steal or tolerate those who do.”

Upon accepting admission to Texas A&M University, you immediately assume a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. You will be required to state your commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.

For additional information please visit: <http://www.tamu.edu/aggiehonor/>

Plagiarism or cheating of any kind will not be tolerated.

Pledge:

On all course work, assignments, or examinations at Texas A&M University, the following Honor Pledge shall be pre-printed and signed by the student: “On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.”

Title IX and Statement on Limits to Confidentiality:

Texas A&M University and the College of Science are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees — including instructors — cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report (per Texas A&M System Regulation 08.01.01) the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:

- Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff, or third parties visiting campus.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Student Counseling Service (<https://scs.tamu.edu/>).

Students and faculty can report non-emergency behavior that causes them to be concerned at <http://tellsomebody.tamu.edu>.

Schedule Fall 2020

Aug 24	How do you resist strategic misinformation? Case Study: Flat earthers
Aug 26	Ethics of Research
Aug 28	Origins of the Universe Part 1: Big Bang and Structure of the Universe
Aug 31	Origins of the Universe Part 2: Origin of the Elements
Sept 1	Discussion
Sept 4	Origins of the Universe Part 3: Astronomy: Tools and Instrumentation
Sept 7	Origins of the Universe Part 4: Statistical Tools and Modelling
Sept 9	Discussion
Sept 11	The size and shape of the Earth
Sept 14	The Historical record of the Earth part 1: Radiometric dating
Sept 16	Discussion
Sept 18	The Historical record of the Earth part 2: Timeline of all things on Earth
Sept 21	The Historical record of the Earth part 3: Composition of fossils
Sept 23	What is DNA?
Sept 25	Discussion
Sept 28	Evolution Part 1: Fossil evidence
Sept 30	Evolution Part 2: DNA
Oct 2	Evolution Part 3: Hominids
Oct 5	Discussion
Oct 7	Reproduction Part 1: Embryonic Development
Oct 9	Reproduction Part 2: Stem cells
Oct 12	Discussion
Oct 14	Video Tutorial: Elements of Good Videos
Oct 16	EXAM I
Oct 19	GMOs Part 1: Background, use in industry and agriculture
Oct 21	GMOs Part 2: Looking into the future, CRISPR and beyond
Oct 23	Discussion

Oct 26	Pathogens Part 1: Bacteria
Oct 28	Pathogens Part 2: Viruses
Oct 30	Vaccines Part 1: How do they work?
Nov 2	Vaccines Part 2: Herd Immunity and Statistical Inference
Nov 4	Discussion: Are vaccines safe?
Nov 6	Drugs Part 1: What is a drug?
Nov 9	Drugs Part 2: How are drugs developed?
Nov 11	Drugs Part 3: Drug side effects and safety
Nov 13	Computers Part 1: What is Artificial Intelligence?
Nov 16	Computers Part 2: Cryptography and Cybersecurity
Nov 18	Forensics Part 1: Forensic evidence and the scientific method: What went wrong?
Nov 20	Forensics Part 2: Forensic science and the JFK assassination
Nov 23	EXAM II
Nov 25	Reading Day
Nov 27	Thanksgiving Holiday
Nov 30	Forensics Part 3: Touch DNA, gun shot residue (GSR), and eye witness testimony
Dec 2	Video viewing and Discussion

Please find artifacts supporting the component area definition and core objectives below, including:

1. Example homework, clicker, and exam questions
2. Detailed description of the video project/rubrics
3. Example Packback discussion

Example Homework Questions

Learning outcomes: Reading comprehension, general knowledge

Reading: *Science Matters* Chapter 15 – The Ladder of Life

Proteins are made out of what chemical building block?

- a) Lipids
- b) Amino Acids**
- c) DNA
- d) Glucose
- e) Mitochondria

What is the defining characteristic of an amino acid?

- a) Nitrogen**
- b) Oxygen
- c) Hydrogen
- d) R-groups

Why are cell membranes made of lipids?

- a) Because there's not enough protein
- b) Because lipids are hydrophobic and protect the contents of the cell**
- c) Because lipids are difficult to metabolize
- d) Because lipids prevent cancer

Which base pairs with Adenine? (Fill in)

Thymine

Which base pairs with Guanine? (Fill in)

Cytosine

Example Clicker Questions

Learning outcomes: Critical thinking, general knowledge, using graphics, making estimates

Molecules like sugars or amino acids enter the cell through receptors located in cell membranes. These receptors act like locks that can only be opened with certain chemical “keys”. The AIDS virus destroys the human immune system because it fits into the receptors of what type of cell?

- a) Red blood cells
- b) Saliva
- c) White blood cells**
- d) Neurons
- e) Mitochondria

What are the four “nucleobase” molecules that make up our DNA?

- a) Adenine, cytosine, guanine, thymine**
- b) Adenosine, cytochrome, guanine, thiamine
- c) Adenine, chromium, glucose, thiol
- d) Arsenic, cytosine, guanine, thiamine
- e) Amine, cytochrome, guarana, thymine

What is a chromosome?

- a) A structure in the cell nucleus that holds DNA spooled around a core of proteins
- b) A structure that is essential to cell reproduction
- c) A structure in the cell nucleus that varies in number depending on species
- d) All of the above**

Example Exam Problems

Learning outcomes: Using graphic information, making estimates, synthesizing knowledge

Read the text below provided on the website of the Environmental Protection Agency (www.epa.gov/radtown/radioactivity-tobacco).

About Radioactivity in Tobacco

You have probably heard plenty of reasons not to smoke or use other tobacco products, but here is one more: The tobacco used to make these tobacco products contains trace amounts of radionuclides. One in five deaths each year in the United States are from tobacco use or secondhand smoke exposure [...]

Tobacco farmers use fertilizer to help their crops grow. These fertilizers contain a naturally-occurring radionuclide, radium. Radium radioactively decays to release radon gas, which then rises from the soil around the plants. As the plant grows, the radon from fertilizer, along with naturally-occurring radon in surrounding soil and rocks, cling to the sticky hairs on the bottom of tobacco leaves, called trichomes. Radon later decays into the radioactive elements lead-210 and polonium-210. Rain does not wash them away. Polonium-210 is an alpha emitter and carries the most risk. [...]

Cigarettes made from this tobacco still contain these radioactive elements. The radioactive particles settle in smokers' lungs, where they build up as long as the person smokes. Over time, the radiation can damage the lungs and can contribute to lung cancer. Using tobacco products can also make users more vulnerable to other cancer-causing contaminants. For example, radon is a colorless, odorless, radioactive gas occurs naturally in soils. Radon can seep into houses, schools and other buildings through cracks in the foundation. Inhaling it over time can cause lung cancer. Smokers exposed to radon are more likely to develop lung cancer than non-smokers. [...]

Answer the following questions according to the article:

- 1) On average, smokers are _____ to be exposed to radioactivity than non-smokers.
 - a. more likely
 - b. equally likely
 - c. less likely

- 2) Which radioactive nuclide inhaled with tobacco smoke is the most dangerous for smokers?
- a. Radium
 - b. Radon
 - c. Lead
 - d. Polonium**
- 3) Assuming that there are 2,400,000 deaths per year in the United States, how many of those deaths are due to tobacco use or second hand smoke?
- a. 120,000
 - b. 240,000
 - c. 400,000
 - d. 480,000**

Final Project Guidelines and Assignments
250 points total (25% of final grade)

In groups of 4-5, you will pick a contemporary science topic related to the course content and present that topic in the form of a short video aimed at a general audience. The final project is worth **25% (250 points)** of your final grade.

When creating your video, you should consider the following guidelines:

1. **Length.** Your video should be 10-15 minutes in length.
2. **Style.** The top scoring videos will be uploaded to a public YouTube channel. While your video must be professional, there are no restrictions on style (your video can include interviews, animations, graphics, a digital light board, stop motion animations....).
3. **Title slide.** The video should begin with a descriptive title that includes proper branding of the Texas A&M University College of Science. Include a list of team member names and their role(s).
4. **Original content.** Aim to create your own resources: drawings, pictures, animations, filmed scenes, interviews, etc. When this is not possible, use only material that is permissible under the Creative Commons license.
5. **Audience.** When creating your video, you will want to define any science terms that will aid in the understanding of your discussion. You can assume your audience has high school level science knowledge.
6. **Closed captioning.** All audio must be closed-captioned.
7. **Acknowledgment.** Resources used should be properly cited using MLA format.
8. **File format.** Your video must be submitted in one of the following file formats: .mov, .mv4, .mp4, .wmv.

There are three stages to this project, including: planning, producing, and editing. The final project includes three assignments, which will sum to **250 points total**.

Final Project Point Breakdown

Planning: Assignment 1	20
Planning: Assignment 2	100
Final Video	120
Teamwork Evaluation	10
Final project total points:	250

Planning:

During the planning stage, you will first select your group members and pick a topic. Once your group chooses a topic, you should begin rigorous research, looking for both popular science articles (magazines, newspapers, books) and science literature related to your topic. **Select at minimum 6 articles** (4 popular and 2 scientific sources) from *reliable sources, published no later than 2015*, which will be the foundation of your video. In addition, you should start thinking about the style of your video.

Assignment 1 (20 points): Upload to eCampus a detailed description of your proposed topic. *Address the following questions:* What is the general topic you are going to address? What elements do you intend to include in the video (e.g. interview, animation, graphs)? What is your take-home message? *You must also include:* Your group member names, a list of 6 references (see requirements above) in MLA format, and a completed “*Teamwork Worksheet*” found at the end of this document. **Assignment 1 is due on Sept. 25th at 11:59pm. Each student in a group is responsible for uploading Assignment 1 onto eCampus.**

Assignment 2 (100 points): Upload to eCampus a completed script. Include screen directions / storyboarding for animations, graphics, etc. Four to six single-spaced pages of text will probably correspond roughly to the correct time for your video. **Assignment 2 is due on Oct. 9th at 11:59pm. Each student in a group is responsible for uploading Assignment 2 onto eCampus.**

Producing:

During this stage you will collect videos, images, sounds, and narration that you will need for your video. An overview of the elements of good videos will be given in class on Oct. 14th. Additional resources can be found at the end of this document.

Editing:

To edit your video footage, you will use video-editing software (recommended software is Adobe Premiere available at the Open Access labs) to bring all the elements together and overlay the narration and sound. If you have access to other software that you are familiar with, you may use that instead.

Final Video (120 points): Your final video will be assessed on the criteria below. *Don't forget to follow the guidelines #1-8 outlined at the beginning of this document!*

1. Content, including:
 - a. What is the new discovery? Why is it important?
 - b. Provide any background information (definitions) needed to understand the science.
 - c. What data (evidence) was collected and how does it support conclusions?
 - d. What impact do the conclusions have on our everyday lives?
2. Organization
3. Style/Quality of the video
4. Delivery
5. Teamwork

A detailed rubric can be found on eCampus. **The final video is due on Nov. 18th at 11:59pm. Each group must upload their video onto eCampus.**

Final Teamwork Evaluation (10 points): You will complete a “*Final Teamwork Evaluation*” found at the end of this document, which will help with assignment of the teamwork score for your final video. **The Teamwork Evaluation is due on the same day as the video (Nov. 18th at 11:59pm). Each student in a group is responsible for uploading his or her own individually completed rubric onto eCampus.**

Production Resources:

For editing or software-specific issues please see the TAMU subscription of LinkedIn Learning archive (formerly Lynda), available to all students through lynda.tamu.edu. There you will find tutorials on a variety of video processing software.

The TAMU library has a studio with a digital light board that you can use:

<http://library.tamu.edu/libraryInstruction/the-studio.html>

The library also has equipment available for check out, but you can get high quality video using your phone. https://library.tamu.edu/services/media_services/equipment.html

Editing software is available in our Open Access Labs <http://oal.tamu.edu/>

For example short science videos, please see:

- [SciShow](#)
- [The Brain Scoop](#)
- [Vox](#) (more general, includes current events)

Teamwork Worksheet

Due: Sept. 25th at 11:59pm as part of Assignment 1

Before producing and editing your videos, groups should assign each member a project role. **Each group** should fill out the table and answer the question below. It is ok if some group members have multiple roles, as indicated in the table below.

Role	Description	Team member name
Director	Leader of the team. Leads team discussions. Checks that all copyright laws are followed. May also take on role of Storyboard Artist.	
Producer	Coordinates project schedule/tasks. Schedules meetings. Ensures that team stays on task and meets that final video meets requirements. Gathers all supplies needed for production and makes sure they are returned on time.	
Researcher	Responsible for finding and compiling information for video project. Research may include: interviews, surveys, primary source materials, facts, and statistics. May also take on role of Script Writer.	
Script Writer	Works with team to provide exact wording (the script) to be used for the video project. Reviewing the research to determine what facts best convey research through a video format.	
Storyboard Artist	Create a numbered list of scenes for the video on paper, including camera angles, lighting, and text captions that describe each scene.	
Set Designer	Creates the environment for each scene prior to filming, including the organization of props, finding necessary resources to create scene. Gathers props, costumes, and sets stage design. May also take on role as Camera Operator.	
Camera Operator	In charge of equipment during shoots. Creates the digital video footage. Ensure the lighting and audio is correctly captured. Decides what scenes need to be re-shot.	
Film editor/graphic artist (up to 2 group members)	Leads the viewing of footage with the group. Decides which shots should be used. Makes final edits. Editor will add music, subtitles, text, and credits. Graphic artist is responsible for generating any animation/art, although this is not a requirement.	

When will your first group meeting take place? _____

Please provide a rough schedule and articulate goals for each meeting:

Final Teamwork Evaluation

Due: November 18th at 11:59pm

Adapted from: Emily Britton, Natalie Simper, Andrew Leger & Jenn Stephenson (2017) Assessing teamwork in undergraduate education: a measurement tool to evaluate individual teamwork skills, *Assessment & Evaluation in Higher Education*, 42:3, 378-397, DOI: 10.1080/02602938.2015.1116497

In the space provided, include your team member names. *You should keep any peer and self-evaluation confidential (i.e., do not fill out the form with your group members!).*

Please rate each member of your group based on the frequency of the teamwork behavior according to the scale below.

0 = Never; 1 = Sometimes; 2 = Usually; 3 = Regularly; 4 = Always

		Team member name					Self-Evaluation
Component	Description						
Contributes to team project	Participates actively and accepts a fair share of the group work						
	Works skillfully on assigned tasks and completes them on time						
	Gives timely, constructive feedback to team members						
Facilitates Contribution of others	Communicates actively and constructively						
	Encourages all perspectives to be considered and acknowledges contribution of others						
	Constructively builds on contributions of others and integrates own work with work of others						
Planning and Management	Fulfilled appropriate role in the group as decided in the "Teamwork Worksheet"						
	Clarifies goals and plans the project						
	Reports to team on progress						
Fosters a Team Climate	Expresses positivity and optimism about team members and the project						
Manages Potential Conflict	Displays appropriate assertiveness: neither dominating, submissive, nor passive aggressive						
	Responds to and manages direct/indirect conflict constructively and effectively						
	Contributes appropriately to healthy debate						
Overall	Generally how would you rate your peer on effort they put into team tasks, their interactions with others, and quantity/quality of contributions to team discussions 0 = Unacceptable; 1 = poor; 2 = acceptable; 3 = good; 4 = excellent						

Rubric for Final Video

Due: November 18th at 11:59pm

	Excellent (30)	Good (25)	Fair (22)	Poor (19)	Comments
Content	<ul style="list-style-type: none"> Includes all 4 requirements outlined in video requirements. Sources cited appropriately. 	<ul style="list-style-type: none"> One topic missing, incomplete, or incorrect. 	<ul style="list-style-type: none"> Two topics missing, incomplete, or incorrect. 	<ul style="list-style-type: none"> Three topics missing, incomplete, or incorrect. Failure to cite sources and/or inappropriate sources used 	
	Excellent (15)	Good (13)	Fair (11)	Poor (9)	Comments
Organization	<ul style="list-style-type: none"> Organized logically with clear transitions. 	<ul style="list-style-type: none"> In one or two cases weak transitions. 	<ul style="list-style-type: none"> Confusing organization or missing transitions. 	<ul style="list-style-type: none"> Jumping back and forth between topics No transitions 	
	Excellent (30)	Good (25)	Fair (22)	Poor (19)	Comments
Style/Quality of the video	<ul style="list-style-type: none"> The video was well edited and moves smoothly from scene to scene with proper use of transitions. Audio and other enhancements were well used. 	<ul style="list-style-type: none"> Editing was not done as well as it should have been. Some poor shots remain. Audio and other enhancements were utilized, but not for maximum effect. 	<ul style="list-style-type: none"> Movie was made, but had very little if any editing. Many poor shots remain. Video was very fragmented and choppy with little to no audio reinforcement. 	<ul style="list-style-type: none"> Tape was totally unedited with no transitions or audio support of any kind. 	
	Excellent (30)	Good (25)	Fair (22)	Poor (19)	Comments
Delivery	<ul style="list-style-type: none"> Clear, confident delivery with strong beginning and ending. Appropriate language, figures, and examples used for general audience Clear explanations. Holds the audience's interest and understanding. 	<ul style="list-style-type: none"> Poor beginning or ending. Mostly appropriate language, figures, and examples used. Mostly holds the audience's interest and understanding. 	<ul style="list-style-type: none"> Delivery detracts from content of video. Occasional use of inappropriate language, figures, and examples used. Loses audience's interest or understanding. 	<ul style="list-style-type: none"> Extreme nervousness. Consistent use of inappropriate language, figures, and examples used. Loses audience's interest and understanding. 	
	Excellent (15)	Good (13)	Fair (11)	Poor (9)	Comments
Teamwork (Grade based on teamwork evaluation package)	<ul style="list-style-type: none"> All students on the team contributed to the discussion and were part of the final project. Team members showed respect with each other. 	<ul style="list-style-type: none"> Most of the students on the team contributed to the discussion and were part of the final project. Team members mostly showed respect with each other. 	<ul style="list-style-type: none"> Most of the students on the team contributed at some level, but a majority of the work was done by one or two. 	<ul style="list-style-type: none"> Some of the team members did not contribute at all to the project. Low levels of respect were evident within the team. 	
Overall comments					
Total:	/120				

(/LOGIN)

[← Back to Explore \(/explore\)](#)

Question

ABOUT THIS DISCUSSION

This discussion has received:

5 Responses



Asked by a **Curious Mind**

🔒 1

What consequences would occur if a human tried to land on the surface of a Jovian planet such as Jupiter? How could one avoid sinking to the core (if that's what would indeed happen)?



In lecture, we learned about the **gaseous** composition of the Jovian planets. We will probably pursue a manned trip to Mars pretty soon. The next planet after that (in order of distance) would be Jupiter. If we were to try to land and step foot on Jupiter, what would happen? Would we tumble into its center? If that's the case, what purpose would be served in trying to plan a manned mission to any of the Jovian planets (besides some of their moon which could be possibly terraformed)?

A link is attached that discusses the atmosphere and surface of Jupiter.

 **Source:**

<https://cseligman.com/text/planets/outersurfaces.htm>
(<https://cseligman.com/text/planets/outersurfaces.htm>)

2:30 PM, 10/7/2018

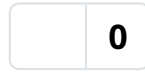
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There would be no way to stop it, and you wouldn't even make it halfway!

I don't believe that there would be a way to stop yourself from sinking, if a human entered Jupiter's atmosphere. For one, you couldn't really "land" on Jupiter per say because it is made mostly of hydrogen and helium gases. Trying to land on it would be like trying to land on a cloud on earth. But if an astronaut were to somehow enter Jupiter's atmosphere they would have to deal with immense pull of Jupiter's gravity which would get denser and denser the further down they got. On top of that they would also have to deal with the insane wind speeds (which are about 300 mph), on the top of the clouds. It would also get hotter and hotter the further down you got eventually becoming hotter than the surface of the sun! To put it into perspective, the Galileo probe that was sent to Jupiter in 1995 only made it about 75 miles down into it's atmosphere, which is not even a tenth of Jupiter's depth. It only lasted 58 minutes before it lost contact and was destroyed by the intense pressure. So to sum it up, No, there would be absolutely nothing that an astronaut would be able to do if they were sucked into Jupiter's atmosphere

to do if they were sucked into jupiter's atmosphere.

<https://www.youtube.com/watch?v=apmSXL43Xao>
(<https://www.youtube.com/watch?v=apmSXL43Xao>)

 **Source:**

<https://www.iflscience.com/space/can-you-stand-on-a-gas-giant-like-jupiter/>
(<https://www.iflscience.com/space/can-you-stand-on-a-gas-giant-like-jupiter/>)



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3:14 PM,
10/7/2018

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Response



Response shared by a **Curious Mind**



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You could land on it if you could spread out your mass far enough

Jupiter may be impossible to land because of the lightness of the gas but there is a chance for Neptune.

Neptune is an icy slush and in theory, you could make something like one of those water landing planes.

But as some of the other points stated going into these planets would be very hard as the pressure would crush anything that went into it. As we learned in class the pressure can be so massive that it can turn hydrogen into a metal which takes some unfathomable amounts of pressure.

So we can't land on the other gas giants but there is a chance for Neptune but there really isn't a point because there really is nothing on those planets

 **Source:**

<https://solarsystem.nasa.gov/planets/neptune/overview/>
(<https://solarsystem.nasa.gov/planets/neptune/overview/>)



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4:20 PM,
10/7/2018

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Response



Response shared by
a Curious Mind



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Why not a balloon?

A Jupiter-roving balloon would be kind of cool. I would have to be a hot-air balloon since a hydrogen or helium balloon would obviously not work in an atmosphere of hydrogen and helium.

The source cited describes how it would work.

Source:

https://www2.jpl.nasa.gov/adv_tech/balloons/outer_jupisat.htm

(https://www2.jpl.nasa.gov/adv_tech/balloons/outer_jupisat.htm)



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10:39 AM,
10/12/2018

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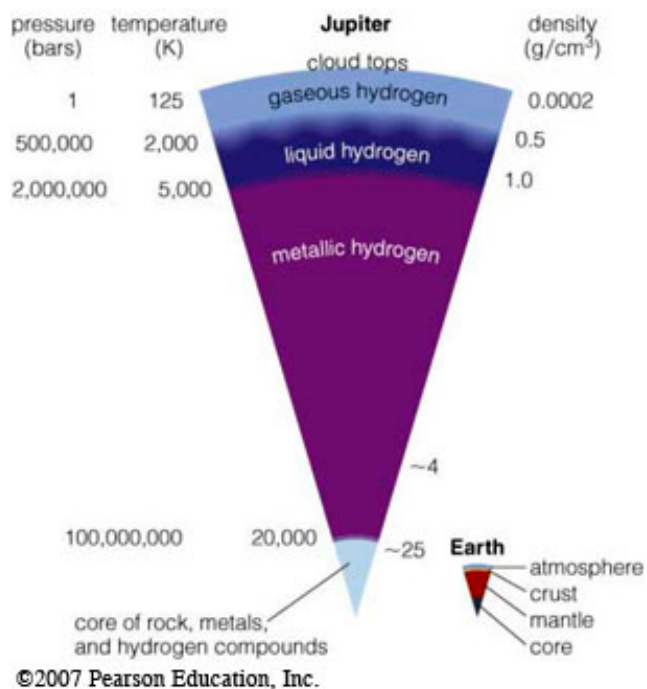
Response shared by **a Curious Mind**



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Sink to core and crushed to an unavoidable death.

Jupiter's surface consists of intense gravity, high atmospheric pressure and intense differing temperature (as the atmosphere is as cold as minus 145 degrees C and 24,000 degrees C at the center of the planet), and violent winds. Beneath Jupiter's atmosphere, there would be a huge liquid hydrogen ocean.



Even if we find a way to overcome the extreme temperatures and winds, so our technology would not be damaged, as deeper we venture into Jupiter's core, we would simply be crushed by the pressure and gravity.



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8:00 PM,
10/14/2018

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Response



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I think that trying to "land" any type of object or spacecraft on Jovian planets would be useless.

You can not land anything on Jupiter due to its lack of surface. Jupiter is made up of hydrogen and helium, two gases. Although the hydrogen is so compressed that it becomes liquid hydrogen. Therefore all the Jupiter is made up pf liquids or gases which would cause a space craft to just fly right through the surface. The space craft would be pulled very strong by gravity towards the center of the planet which is theorized to be so compacted that the electrons are squeezed out of the hydrogen cells and are just flowing around causing the center of Jupiter to be thousands of degrees. This would destroy anything object or space craft that even got near it; therefore it is impossible to "land" anything on Jupiter or any other Jovian planet.

 **Source:**

<https://solarsystem.nasa.gov/planets/jupiter/in-depth/>

(<https://solarsystem.nasa.gov/planets/jupiter/in-depth/>)



**9:24 PM,
10/21/2018** (/questions/6cf3e2f6-e21f-420a-ad79-e74b062c88ca/resp
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