

SPST465

STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

Course Summary

Description

Course Description: The relatively new science of space weather has significant influence on both the space program, and our increasingly technology-dependent society. Space weather is largely the result of solar activity, including sunspots, solar wind and solar flares and their interaction with the Earth's magnetic field. This course will discuss this Sun-Earth connection, its implications for both Earth-bound and space activities, and the current state of space weather study and prediction.(Prerequisite: SPST300).

Course Scope:

This is an eight-week course that introduces the student to major aspects of space weather. This includes the science behind solar activity, the effects of solar activity on the Earth and its environment, the implications for future space activity, and the future of space weather forecasting.

Instruction is primarily through readings (both textbook and online), along with weekly discussions. There will be periodic quizzes, and four reviews of space weather websites. Each student will create a presentation project on a space weather topic of his/her choice.

Objectives

Upon completion of this course, the student will be able to:

- Explain the processes that cause space weather. LO-1
- Analyze the current state of solar science, and the explanations for the source of space weather effects. LO-2
- Evaluate the effects of space weather on Earth-based and space-based technology, human health, and economics. LO-3
- Appraise the current capabilities of ground-based and space-based observatories to forecast space weather. LO-4
- Examine evidence for climate change as a result of solar activity. LO-5

Outline

Week 1: Introduction to Space Weather

Learning Objective(s)

LO-1

Explain the processes that cause space weather

Reading(s)

Carlowicz and Lopez

Video: Earth's Dynamic Space, Ch 5

Space Weather Basics

Assignment(s)

Introduction Forum

Discussion Board # 2

Quiz 1

Week 2: Introduction to Space Weather

Learning Objective(s)

LO-1

Explain the processes that cause space weather

Reading(s)

Carlowicz and Lopez

Video: Earth's Dynamic Space, Ch 5

Space Weather Basics

Assignment(s)

Introduction Forum

Discussion Board # 2

Quiz 1

Week 3: The Sun

Learning Objective(s)

LO-2

Analyze the current state of solar science, and the explanations for the source of space weather effects

Reading(s)

Freeman

Assignment(s)

Discussion Board # 3

Discussion Board # 4

Homework 1, 2

Quiz 2

Week 4: The Sun

Learning Objective(s)

LO-2
Analyze the current state of solar science, and the explanations for the source of space weather effects

Reading(s)

Freeman

Assignment(s)

Discussion Board # 3
Discussion Board # 4
Homework 1, 2
Quiz 2

Week 5: Impacts of Space Weather

Learning Objective(s)

LO-3
Evaluate the effects of space weather on Earth-based and space-based technology, human health, and economics

Reading(s)

Odenwald, chapters 4, 6, 7, 8

Aurora module

Assignment(s)

Discussion Board # 5
Homework# 3
Quiz 3

Week 6: Space Weather Forecasting

Learning Objective(s)

LO-3
Evaluate the effects of space weather on Earth-based and space-based technology, human health, and economics

Reading(s)

Poppe

NOAA Space Weather Scales

Space Environment Center

Assignment(s)

Discussion Board #6
Discussion Board #7

Presentation Project
Quiz 4

Week 7: Space Weather Forecasting

Learning Objective(s)

LO-3
Evaluate the effects of space weather on Earth-based and space-based technology, human health, and economics

Reading(s)

Poppe

NOAA Space Weather Scales

Space Environment Center

Assignment(s)

Discussion Board #6
Discussion Board #7
Presentation Project
Quiz 4

Week 8: Ground-based and Space-based Observations Effects of Space Weather on Earth's Climate

Learning Objective(s)

LO-4
Appraise the current capabilities of ground-based and space-based observatories to forecast space weather

LO-5
Examine evidence for climate change as a result of solar activity

Reading(s)

Kumar

Simpson

Changing Sun, Changing Climate

Past Cycles: Ice Age Speculations

Dimming the Sun

SOHO

ACE

Assignment(s)

Discussion Board Week 8

Evaluation

The grading will be based on eight graded discussions, 3 website reviews, a presentation project, and 4 open-book quizzes, and a final paper.

1. Discussion Boards

There will be eight discussion board topics during the course, one for each week. At the beginning of the week, you will find a discussion topic in the weekly lesson. You must respond to each topic I post, AS WELL as comment on another student's response to my post. Use your readings and the supplementary websites, but do not merely write what they say, show that you are thinking about what you are reading. Any direct quotations or paraphrasing must be properly cited, using the Turabian format. Treat these posts as mini-essays. Some of these posts will have a requirement to write between 500 and 800 words, I suggest you write your posts in a word processor and then copy and paste to the discussion group. This way, you can use whatever proofreading tools you have. You all have spelling and grammar checkers, use them...but don't rely on them exclusively, make sure you read through your assignments to check for clarity and mistakes the computer can't catch, such as their/there/they're or to/too. Writing in a word processor instead of the online classroom also prevents losing your post if the website hiccups.

There is no length requirement for the responses, but they need to be substantive, not simply saying "good post" or "I agree." Each discussion will count for 3% of the final grade (for a total of almost one-quarter of your course grade). I grade discussion posts using this [Discussion Board Rubric](#). Be sure you are familiar with the standards.

Please try not to post at the last minute, as this hinders your classmates' ability to do their work on time. Although the timeliness portion of your grade is based on your initial posting, not your critiques.

2. Quizzes

There will be 4 open-book quizzes. The first contains multiple choice, fill-in, and/or matching questions. The others are actually "book reviews," but I've put them in as quizzes because they have a specific structure. For quizzes 2 through 5 you will be asked to discuss what you thought of the reading, to identify the most important things you learned from it, and to construct specific types of evaluation questions based on those important things. These quizzes are designed to ensure understanding of the reading, as thinking about how to evaluate knowledge about something is a good way to think about it in a different frame of reference and make the material "stick" better in your mind. Each is worth 5% of the final grade for a total of 20%.

3. Website Reviews/Project

During weeks 3, 4, 5 you will be given a space weather website to review. Your review should include the following information at a minimum:

- Title
- URL
- Date of publication or most recent update
- Author and/or organization
- Target audience
- Topic or purpose
- Effectiveness at conveying its topic to its target audience
- Quality of design
- Something new that you learned from this site

The reviews should be 800-1000 words and are each worth 5% of your course grade, for a total of 20%.

Project

For this project, you will choose some aspect of space weather that particularly interests you and create a

presentation on the subject. This can be either in the form of a website, PowerPoint-style presentation, an audio/visual presentation, or a combination of these. The goal of the presentation should be to explain your topic in a way that someone unfamiliar with space weather would understand. It should contain a variety of multimedia in addition to text. One additional note: Wikipedia is **not** an acceptable source for your projects. You may use it to help guide you to further information, but that's it. Your sources should be attributable to an identifiable person or organization. I will grade the projects based on the standard [APUS Assignment Rubric](#).

You must complete all assigned tasks in order to pass the course. Reading assignments for the semester are listed below. Each week's assignments and other information is contained in the lesson section.

Evaluation Criteria:

The points earned on course assignments are translated into Grade Builder points, based on the respective weight of each assignment to determine the course grade. The final grade in the course will be based on total Grade Builder points.

Grading:

Name	Grade %
Forums	20.00 %
Week 1 Introduction	2.50 %
Week 2 Forum	2.50 %
Week 3 Forum	2.50 %
Week 4 Forum	2.50 %
Week 5 Forum	2.50 %
Week 6 Forum	2.50 %
Week 7 Forum	2.50 %
Week 8 Forum	2.50 %
Homework	40.00 %
Website Review #1	10.00 %
Website Review #2	10.00 %
Website Review #3	10.00 %
Project	10.00 %
Final Paper	25.00 %
Research paper	25.00 %
Quizzes	15.00 %
Quiz 1 - Week 2	5.00 %
Quiz 2 - Week 4	5.00 %
Quiz 3 - Week 5	5.00 %

Materials

Book Title: Storms from the Sun: The Emerging Science of Space Weather-E-book available in the APUS Online Library and online at http://www.nap.edu/catalog.php?record_id=10249

Author: Michael Carlowicz, Ramon Lopez

Publication Info: National Academies Press

ISBN: 10249

Book Title: Severe Space Weather Events--Understanding Societal and Economic Impacts: A Workshop Report - e-book available in the APUS Online Library

Author: Space Studies Board, et. al.

Publication Info: National Academies Press

ISBN: 9780309127691

Book Title: Storms in Space

Author: John W Freeman

Publication Info: Cambridge University Press

ISBN: 9780521660389

Book Title: To find the library e-book(s) req'd for your course, please visit <http://apus.libguides.com/er.php> to locate the eReserve by course #. You must be logged in to eCampus first to access the links.

Author: N/A

Publication Info: N/A

ISBN: N/A

Online Readings/Multimedia

Readings listed below are available online (some are posted in the course materials section of the online classroom if they are available as a PDF or a single webpage), and can be accessed at the listed web address.

- Odenwald, Sten. *The 23rd Cycle: Learning to Live With a Stormy Star*. Columbia University Press, 2000.
- Simpson, S. (2005), The Sun's Fury In Three Dimensions, *Space Weather*, 3, S10005, doi:10.1029/2005SW000195.
- Applied Physics Laboratory. "Space Weather." From Earth's Dynamic Space DVD. <http://geospace.jhuapl.edu/multimedia/animations/polar/05spaceweather.mov>
- [Space Weather Basics](#)
- [Aurora](#)
- [NOAA Space Weather Scales](#)
- [Space Environment Center](#)
- [Changing Sun, Changing Climate](#)
- [Past Cycles: Ice Age Speculations](#)
- [Dimming the Sun](#)
- [SOHO](#)
- [ACE](#)

Software Requirements

- Web Browser
- Word Processor
- PDF viewer, such as Adobe Acrobat Reader [Click here for free download](#)

Selected Bibliography

[Space Weather: The International Journal of Research and Applications](#)

Spaceweather.com

Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- [Tutor.com](#) offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 20% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final

posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.

- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

University Policies

[Student Handbook](#)

- [Drop/Withdrawal policy](#)
- [Extension Requests](#)
- [Academic Probation](#)
- [Appeals](#)
- [Disability Accommodations](#)

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