

# Fall 2020 PHYS-1080-MW1 Syllabus

Home (<https://usu.instructure.com/courses/517723>)

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## COURSE DESCRIPTION

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**Instructor:** Vincent Wickwar

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**Office:** SER 218e

**Office Hours:** By appointment (I am readily available)

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**Phone:** (435) 512-1124

**Fax:** (435) 797-2992

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**Email:** [vincent.wickwar@gmail.com](mailto:vincent.wickwar@gmail.com)

(I will try to respond within 24 hours.)

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**Undergraduate Teaching Fellow (UTF):**

Emily Stalder

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**Email:**

[emilymelisa@gmail.com](mailto:emilymelisa@gmail.com)

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## TEXTBOOK

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### Required Text

1. *Life in the Universe*, 4th Edition by Bennett and Shostak. Text is available at USU Bookstore. Other versions may also be acceptable, please inquire.
2. A personal response system is also required (I-Clicker). An inexpensive substitute is the I-Clicker 1 (we are on version II).

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### Articles

This is an extremely active and exciting time for extending the search for life in our solar system, galaxy, and the universe. This is being done with spacecraft, telescopes, laboratory simulations, computer simulations, and theory.

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## LAB FEE

Students are assessed a \$10 laboratory fee that is used for upkeep of observatory equipment. This should have been paid at registration.

# COURSE INFORMATION

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## Honor Code

The honor code will be strictly enforced in this course. Any suspected violations of the honor code will be promptly reported to the honor system. For more information please visit the USU Student Conduct website (<http://studentconduct.usu.edu/studentcode/article6>).

## GOAL

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The most profound questions of the human experience will be asked, and in some cases answered. How and why did our existence become possible? Are these conditions necessary for life in general? Could we find life elsewhere in the universe? Where should we look? This course will take a critical look at how science evaluates these questions and where the search for life is today.

## SUPPLEMENTAL INSTRUCTION

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A supplemental instructor (SI/UTF) has been assigned to this class. She is Emily Stalder. More information about the instruction will be given in class.

## GRADING

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Your final grade will be determined as follows:

Four Chapter Quizzes	60%
Short Quizzes	10%
Classroom Points (Clickers)	10%
Media Project	15%
Observatory Observation	5%
<b>Total</b>	<b>100%</b>

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### Chapter Quizzes

There will be four chapter quizzes given as listed in the calendar, which follows. Each will cover 3 to 4 chapters. (There is no final comprehensive exam.) The chapter quizzes will have multiple choice answers, and will be taken in the USU Testing Center. A class period prior to the Chapter Quiz will be devoted to reviewing the 3 or 4

chapters. The quiz will be available for 3 days starting on the day before the test day. The chapter quizzes will comprise 60% of the overall grade. To avoid scheduling conflicts, schedule these EARLY. (The Testing Center is only open part of the day on Saturdays.)

## Short Quizzes

There will be given in class in Canvas after each chapter, i.e., once a week. They will have multiple choice answers, that can be answered using a computer, tablet, or smart phone. Pay careful attention to when they need to be finished as these **cannot be made up**. Enough quizzes will be given that you will be able to drop several of your lowest scores. These short quizzes will comprise 10% of the overall grade.

## Classroom Points

These will be awarded using a personal response system (i-clicker or i-clicker app) in class as instant feedback on knowledge. Grading will be structured to give points (1) for participation and (2) for getting correct answers. These points can only be obtained during class and cannot be made up. You will need your i-clicker or i-clicker app to answer. A typical day will be scored 3 points for answering 80% of the questions posed, then up to 2 more points for getting 2 or more of those questions right. No score will be given on the first 2 days of class or on review days. The lowest 4 daily scores will be dropped. These classroom responses will comprise 10% of the overall grade.

## Media Project

Hollywood has provided many examples of possible results of an alien encounter. During the semester you will watch 3 movies from many possible choices that are on reserve in the Library or that you watch on your own. You will then complete a written evaluation of the question of life explored by the movie. The questions that appear are available on Canvas for you to print in advance, if you wish. The essay question is intended to be an evaluation of what you have learned during the semester regarding that topic and will be graded as such. Please select a movie from the choices available in the library, as substitutions are complicated. These 3 media projects will comprise 15% of the overall grade.

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## Observatory Observation

You MUST attend the Physics Department Observatory during the semester. The point is to get an idea of how people explored the universe over a few centuries. The observatory is only open on clear nights when it is dark. It is best to do this in September or October while the weather is warm and good. Moreover, early in the semester many planets will be visible. Shortly before going to the observatory, call (435)-797-2942 to listen to a message to make sure the observatory will be open that evening. The Observatory TAs will operate the telescopes. They will provide a form for you to fill out. The experience is fun and worth 5% of the overall grade.

## Astronomical Observatory Info



The Astronomical Observatory is on the roof of the Science Engineering Research Building (<https://www.usu.edu/map/index.cfm?id=30>) in the southwest corner. Use the northwest entrance to the SER building and take the elevator to the roof.

Phone 797-2942 shortly ahead of time to listen to the message about whether or not the observatory will be open.

Use the Observatory Report (<https://usu.instructure.com/courses/593922/files/78145246/download?verifier=mNmzGJq0wlwHSCmCz1LfNWrvKmdyRLFB9BKAXVv0&wrap=1>) form to guide your observing.

## □ GRADE SCHEME

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The following grading standards will be used in this class:

A	95.0-100%
A-	90.0-94.9%
B+	87.0-89.9%
B	84.0-86.9%
B-	80.0-83.9%
C+	77.0-79.9%
C	74.0-76.9%
C-	70.0-73.9%
D+	67.0-69.9%
D	60.0-66.9%
F	<60.0%

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## SCHEDULE

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The following schedule is tentative. It may change to meet course needs.

Week	Date	Day	Lecture No.	Ch.	Material Covered
1	26 Aug	Monday	1	1	Course Information, Tour of the Universe
	28 Aug	Wednesday	2	1	A Universe of Life?
	30 Aug	Friday	3	1	(Continued) - <b>Short Quiz 1</b>
2	4 Sep	Wednesday	4	2	Ancient Astronomy
	6 Sep	Friday	5	2	Scientific Method and Astrobiology
3	9 Sep	Monday	6	2	(Continued) - <b>Short Quiz 2</b>
	11 Sep	Wednesday	7	3	History of the Universe
	13 Sep	Friday	8	3	Worlds, Matter and Energy
4	16 Sep	Monday	9	3	(Continued) - <b>Short Quiz 3</b>
	18 Sep	Wednesday	10	1-3	<b>In-class review of Chapters 1 - 3</b>
	20 Sep	Friday	11	4	Earth's History - <b>Chapter Quiz 1: 19, 20, &amp; 21 Sep</b>
5	23 Sep	Monday	12	4	Earth's Geology and Atmosphere

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Week	Date	Day	Lecture No.	Ch.	Material Covered
	25 Sep	Wednesday	13	4	(Continued) - <b>Short Quizzes 4A &amp; 4B</b>
	27 Sep	Friday	14	5	What is Life? Cells and Metabolism
6	30 Sep	Monday	15	5	Metabolism, Heredity, Life at the Extreme
	2 Oct	Wednesday	16	5	(Continued) - <b>Short Quiz 5</b>
	4 Oct	Friday	17	6	Origin of Life, Early Evolution and Oxygen
7	7 Oct	Monday	18	6	Oxygen, Diversity, Extinction, Human Evolution
	9 Oct	Wednesday	19	6	(Continued) - <b>Short Quizzes 6A &amp; 6B</b>
	11 Oct	Friday	20	4-6	<b>In-class review of Chapters 4 - 6</b>
8	14 Oct	Monday	21	7	Requirements for Life, Exploration. <b>Media Project Overview. Chapter Quiz 2: 12, 14, &amp; 15 Oct</b>
	16 Oct	Wednesday	22	7	Exploring the solar system and a biological tour
9	21 Oct	Monday	23	7	(Continued) - <b>Short Quiz 7</b>
	23 Oct	Wednesday	24	8	Mars
	25 Oct	Friday	25	8	Mars: Searching for life, Meteorites, Ongoing Exploration
10	28 Oct	Monday	26	8	(Continued) - <b>Short Quiz 8</b>
	30 Oct	Wednesday	27	9	Life on Jovian Moons
	1 Nov	Friday	28	9	Jovian Moons (Cont.)
11	4 Nov	Monday	29	9	(Continued) - <b>Short Quiz 9</b>
	6 Nov	Wednesday	30	10	Habitability factors Present and Future
	8 Nov	Friday	31	10	Venus and Global Warming
12	11 Nov	Monday	32	10	(Continued) - <b>Short Quiz 10</b>
	13 Nov	Wednesday	33	7-10	<b>In-class review of Chapters 7 - 10.</b>
	15 Nov	Friday	34	11	The Search for Habitable Worlds. <b>Chapter Quiz 3: 14, 15, &amp; 16 Nov</b>
13	18 Nov	Monday	35	11	Rare Earth. <b>Media Project Due</b>
14	20 Nov	Wednesday	36	11	(Continued) - <b>Short Quiz 11</b>
	22 Nov	Friday	37	12	Search for Extraterrestrial Intelligence.
	25 Nov	Monday	38	12	Aliens and UFO's - <b>Observatory Observing Ends - Short Quiz 12</b>
15	2 Dec	Monday	39	13	Interstellar travel - <b>Short Quiz 13A &amp; 13B</b>
	4 Dec	Wednesday	40	11-13	<b>In-class review of Chapters 11 - 13.</b>
	6 Dec	Friday	41	13	Fermi Paradox. <b>Chapter Quiz 4: 5, 6, &amp; 7 Dec</b>

# UNIVERSITY POLICIES & PROCEDURES

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## Academic Freedom and Professional Responsibilities

Academic freedom is the right to teach, study, discuss, investigate, discover, create, and publish freely. Academic freedom protects the rights of faculty members in teaching and of students in learning. Freedom in research is fundamental to the advancement of truth. Faculty members are entitled to full freedom in teaching, research, and creative activities, subject to the limitations imposed by professional responsibility. Faculty Code Policy #403 (<http://www.usu.edu/hr/files/uploads/Policies/403.pdf>) further defines academic freedom and professional responsibilities.

## Academic Integrity – "The Honor System"

Each student has the right and duty to pursue his or her academic experience free of dishonesty. To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge:

*"I pledge, on my honor, to conduct myself with the foremost level of academic integrity."*

A student who lives by the Honor Pledge is a student who does more than not cheat, falsify, or plagiarize. A student who lives by the Honor Pledge:

- Espouses academic integrity as an underlying and essential principle of the Utah State University community;
- Understands that each act of academic dishonesty devalues every degree that is awarded by this institution; and
- Is a welcomed and valued member of Utah State University.

## Academic Dishonesty

The instructor of this course will take appropriate actions in response to Academic Dishonesty, as defined the University's Student Code. Acts of academic dishonesty include but are not limited to:

- **Cheating:** using, attempting to use, or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity. Unauthorized assistance includes:
  - Working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done "individually;"
  - Depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
  - Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;
  - Acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission;
  - Continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity;
  - Submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or engaging in any form of research fraud.
- **Falsification:** altering or fabricating any information or citation in an academic exercise or activity.
- **Plagiarism:** representing, by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

For additional information go to: ARTICLE VI. University Regulations Regarding Academic Integrity (<https://studentconduct.usu.edu/studentcode/article6>)

## Sexual Harassment/Title IX

Utah State University is committed to creating and maintaining an environment free from acts of sexual misconduct and discrimination and to fostering respect and dignity for all members of the USU community. Title IX and USU Policy 339 (<http://www.usu.edu/policies/339>) address sexual harassment in the workplace and academic setting.

The university responds promptly upon learning of any form of possible discrimination or sexual misconduct. Any individual may contact USU's Office of Equity (<https://equity.usu.edu/>) for available options and resources or clarification. The university has established a complaint procedure to handle all types of discrimination complaints, including sexual harassment (USU Policy 305 (<http://www.usu.edu/policies/305/>)), and has designated the Office of Equity Director/Title IX Coordinator as the official responsible for receiving and investigating complaints of sexual harassment.

## Withdrawal Policy and "I" Grade Policy

Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term 'extenuating' circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

## Students with Disabilities

USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) (<http://www.usu.edu/drc/>) as early in the semester as possible (University Inn # 101, (435) 797-2444, [drc@usu.edu](mailto:drc@usu.edu) (<mailto:drc@usu.edu>)). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

## Diversity Statement

Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact:

- Division of Student Affairs: <https://studentaffairs.usu.edu> (<https://studentaffairs.usu.edu/>), (435) 797-1712, [studentservices@usu.edu](mailto:studentservices@usu.edu) (<mailto:studentservices@usu.edu>), TSC 220
- Student Legal Services: <https://ususa.usu.edu/student-association/student-advocacy/legal-services> (<https://ususa.usu.edu/student-association/student-advocacy/legal-services>), (435) 797-2912, TSC 326,
- Access and Diversity: <http://accesscenter.usu.edu> (<http://accesscenter.usu.edu/>), (435) 797-1728, [access@usu.edu](mailto:access@usu.edu) (<mailto:access@usu.edu>); TSC 315
- Multicultural Programs: <http://accesscenter.usu.edu/multiculture> (<http://accesscenter.usu.edu/multiculture>), (435) 797-1728, TSC 315
- LGBTQA Programs: <http://accesscenter.usu.edu/lgbtqa> (<http://accesscenter.usu.edu/lgbtqa/>), (435) 797-1728, TSC 3145
- Provost's Office Diversity Resources: <https://www.usu.edu/provost/diversity> (<https://www.usu.edu/provost/diversity/>), (435) 797-8176

You can learn about your student rights by visiting:

The Code of Policies and Procedures for Students at Utah State

University: <https://studentconduct.usu.edu/studentcode> (<https://studentconduct.usu.edu/studentcode/>)

## Grievance Process

Students who feel they have been unfairly treated may file a grievance through the channels and procedures described in the Student Code: Article VII (<https://studentconduct.usu.edu/studentcode/article7>).

### **Full details for USU Academic Policies and Procedures can be found at:**

- Student Conduct (<http://www.usu.edu/studentconduct>)
- Student Code (<https://studentconduct.usu.edu/studentcode/>)
- Academic Integrity (<https://studentconduct.usu.edu/studentcode/article6>)
- USU Selected Academic Policies and Procedures (<http://www.usu.edu/provost/faculty-life/syllabus.cfm>)
- USU Academic Policies and Procedures (<http://catalog.usu.edu/content.php?catoid=4&navoid=546>)
- Academic Freedom and Professional Responsibility Policy (<http://www.usu.edu/hr/files/uploads/Policies/403.pdf>)

### **Emergency Procedures**

In the case of a drill or real emergency, classes will be notified to evacuate the building by the sound of the fire/emergency alarm system or by a building representative. In the event of a disaster that may interfere with either notification, evacuate as the situation dictates (i.e., in an earthquake when shaking ceases or immediately when a fire is discovered). Turn off computers and take any personal items with you. Elevators should not be used; instead, use the closest stairs.