BOISE STATE UNIVERSITY
UNIVERSITY FOUNDATIONS

THE UNIVERSITY FOUNDATIONS CURRICULUM is designed to prepare Boise State graduates for their lives and careers. These courses broaden and enhance the more focused study done within each major; they help students discover more ideas, develop different ways of knowing, and connect with more people. This broad foundation deepens what students KNOW, what they can DO, and who they can BECOME.

COURSE THEME: ASTRONOMY

COURSE: FALL 2020, UF 100, "ALIEN WORLDS, ALIEN LIFE"

MEETING TIMES AND FORMATS:

- Plenary Zoom Sessions - Tuesdays and Thursdays, 9-9:50am Mountain Time (MT)
- Discussion Section Zoom Sessions - Tuesdays and Thursdays by section:
  - **D22** - Tuesdays, 10:30-11:20am MT; **D23** - Tuesdays, 12:00-12:50pm MT; **D24** - Thursdays, 10:30-11:20am MT; **D25** - Thursdays, 12:00-12:50pm MT

  See your e-mail for links to the regularly scheduled Zoom sessions.

LEAD FACULTY: Prof. Brian Jackson

ZOOM OFFICE HOURS: Tuesdays and Thursdays, 1-2pm - See your e-mail for the Zoom link.

CONTACT INSTRUCTIONS: The best way to contact Prof. Jackson is via e-mail.

CONTACT INFORMATION: BJACKSON@BOISESTATE.EDU

COURSE DESCRIPTION:

UF100 - Alien Worlds, Alien Life explores the discoveries of extrasolar planets, planets outside our solar system, and how these discoveries have revolutionized the search for extraterrestrial life.

UNIVERSITY FOUNDATIONS 100 (UF 100) is the first course in the 36-credit University Foundations curriculum. Each UF 100 course offers students the opportunity to explore important ideas and ways of learning while they familiarize themselves with the university setting and make plans for their education. The course challenges students to become more active learners as they further develop two essential skills for college and life: critical inquiry and oral communication.

CRITICAL INQUIRY: Gather, organize, and evaluate information to produce a well-reasoned analysis that leads to new understandings or questions.

ORAL COMMUNICATION: Deliver clear, focused, well-reasoned speech and critically engage with the speech of others.

Course Organization

Since our course will be entirely remote, it will be organized around three regular weekly meetings: Tuesday and Thursday mornings, we will meet as a class over Zoom in a **plenary meeting**; and then during either Tuesday or Thursday after the plenary meeting, students will meet in smaller groups called **discussion sections**. Please consult your schedule online to see which discussion section you're in.

Each student will be assigned to a three- or four-person group, called your **project group**. Usually, there are no major issues among group members, but if you find that you are struggling with your group, you can report the issue using this form: forms.gle/KrSG8z5JCetSQ4iPA. (You can fill out the form anonymously, but it will be harder for me to take action. I promise to handle the situations as delicately as possible.)

After the Thanksgiving Break, we will NOT have regularly scheduled class Zoom sessions (except for office hours). Instead, you are required to meet regularly (over Zoom) with your project group to complete your Unit III project video.

Please fill out this poll to let your instructor know about your tech access - forms.gle/VeFgbUKSNaxsJuTk7

Plenary Meetings

Each plenary meeting will focus on a specific astronomical topic (see schedule below), but *before* the meeting, you must watch the pre-recorded video lectures on that topic. During the plenary session, we will discuss the topic, and then you will complete **plenary assignments** with your project group. Although you are not required to attend plenary, you are strongly encouraged to. Whether you attend or not, the plenary assignments are due by 11:59pm MT ~~the day of that plenary meeting~~ on Friday the week the assignment is due.

Plenary meetings will be recorded via Zoom and posted on Blackboard. Please let me know if you have any concerns about that.

Discussion Section Meetings

Most weeks, you will have some reading to do outside of class (usually about 20 pages), and we will discuss this reading during the discussion section meetings. Based on the readings, you will also have to complete a short **discussion section assignment** on Blackboard, essentially a short reading journal. The discussion section assignments are also due by 11:59pm MT ~~the day of that plenary meeting~~ on Friday the week the assignment is due.

Group Work During Meetings

During most plenary and discussion section meetings, you will be sent to Zoom breakout rooms to discuss some topic with your project group. During those discussions, each member of the group should volunteer to serve in a specific role, as described next. Everyone should try their hand at each role:

- Facilitator - Leads the discussion; Recorder - Takes notes; Presenter - Presents discussion to the class (can double as the Recorder if your group only has three); Timekeeper - Keeps an eye on the time

Basic ground rules: be respectful, don't interrupt when others are speaking, and use the Zoom mute function when you are not actively talking. Fill out this survey to provide feedback on other rules: https://forms.gle/vYCmg6CWvDujBizz6.

Projects

You will also work with your project groups on three unit projects over the course of the semester. Additional details are given on Blackboard. There will be no exams for the class; these projects will serve as summative (overall) assessments of your understanding of the course content.

Course Learning Outcomes

- Formulate a relevant and falsifiable question about a scientific idea or discovery
- Distinguish between scientific and pseudo-scientific ideas
- Roughly describe the evidence and/or reasoning behind foundational ideas in modern astronomy
- Explain basic celestial motion
- Roughly explain the techniques to find and characterize extrasolar planets
- Summarize the requirements for life as we know it
- Discuss why various environments throughout the universe might be good or bad places to find life
- Describe what evidence might signal the presence of simple and intelligent life on a distant world
- Learn and practice professional communication etiquette

Required Materials

- **Sanders, Matthew L. *Becoming a Learner: Realizing the Opportunity of Education*.** Institute for Communication & Leadership: 2012. (https://www.amazon.com/Becoming-Learner-Realizing-Opportunity-Education/dp/1467536342/)

- **Jayawardhana, Ray. *Strange New Worlds*.** Princeton University Press: 2013. (Available on amazon - https://www.amazon.com/Strange-New-Worlds-Search-Planets/dp/069115807X)

  An e-book version is also available for free from the Boise State library - http://www.boisestate.eblib.com/patron/FullRecord.aspx?p=1114878

Additional Resources

- ***Astronomy***, an open-source, free online textbook - https://openstax.org/details/books/astronomy
- ***Exocast***, a regular podcast on exoplanet research - http://www.exocast.org/
- **P.E. Robinson's intro astronomy youtube channel** - https://www.youtube.com/channel/UCDtnn4Sp8VHm8VqYGFO1E-Q
- **Prof. David Kipping's "Cool Worlds" youtube channel -** https://www.youtube.com/channel/UCGHZpIpAWJQ-Jy_CeCdXhMA

Grades

Assignments are organized on Blackboard week-by-week. Grades will not be curved, and I cannot adjust final grades for any reason. Please keep up with your assignments, but don't hesitate to reach out if you find yourself struggling (bjackson@boisestate.edu).

- Introductions (10 points): Before Friday, Oct 2, please contact me (bjackson@boisestate.edu) to schedule a short Zoom one-on-one introduction.

- Plenary Assignments (10 points each): The plenary assignments are due by 11:59pm MT on Friday the week ~~the day~~ of the corresponding plenary meeting. Even though you may complete the assignments in your project group, each student must submit their own assignment via Blackboard. - *Relevant to all ULOs*

- Discussion Section Assignments (20 points each): The discussion section assignments are due by 11:59pm MT on Friday ~~the day~~ of your discussion section meeting. - *Relevant to all ULOs*

- Library Badges (20 points) -- The Library Badges serve as an introduction to the Albertsons Library and research skills that will not only help you with your papers and projects but will also help you navigate information used in your personal life and future employment. You will view content and complete tasks in four content areas including the Albertsons Library, strategies for searching, learning how to find quality sources, and evaluating sources. You can find them at https://guides.boisestate.edu/librarybadges. When you've completed them, send Prof. Jackson a screencap of your completion certificate (accessible under the "Badges Earned" link on Blackboard).

Contact the library for help - librarybadges@boisestate.edu. They will be available on Blackboard on Aug 31 and are due by ~~Thursday, Oct 1~~ Friday, Oct 2 by 11:59pm MT. It will take a few days to grade, but as long as you turn the assignment in on time, you will receive credit for completing it.

- Unit Projects (100 points each): You will have several weeks to complete each unit project, and instructions for completing them are posted on Blackboard in the Weekly Assignments/Week 1 folder. The first (focused on lunar phases) and second (focused on interviewing an exoplanet astronomer) projects are both due on ~~Tuesday, Oct 27~~ Friday, Oct 30 by 11:59pm MT. The third project (focused on topics discussed in class) on ~~Thursday, Dec 10~~ Friday, Dec 11 by 11:59pm MT. All projects will take a few weeks to complete, so please don't wait until the last minute to complete them. You will also have time during class Zoom sessions to work on the projects with your project groups. - *Relevant to all ULOs*

- Extra Credit (20 points total): There are a few extra credit assignments available. See instructions on Blackboard under the Weekly Assignments/Week 1 folder. You must submit your extra credit assignment before ~~Thursday, Dec 10~~ Friday, Dec 11 by 11:59pm MT. No submissions will be accepted after that.

Late Assignments

I must receive your work on time to provide an equal standard for all students and to give you timely feedback for improvement, and so late assignments will not be accepted but may be excused in extenuating circumstances with the instructor's approval.

Grading Scale

C- or better is required to receive credit for this course.

A grades	100–97%: A+	97–93%: A	93–89.5%: A-
B grades	89.5–87%: B+	87–83%: B	83–79.5%: B-
C grades	79.5–77%: C+	77–73%: C	73–69.5%: C-
D grades	69.5–67%: D+	67–63%: D	63–59%: D-
F grades	59–0%: F		

Course Expectations

Boise State University expects everyone to uphold the Boise State University Statement of Shared Values, which includes the following:

Academic Excellence ▪ Caring ▪ Citizenship ▪ Fairness ▪ Respect ▪ Responsibility ▪ Trustworthiness

Building these values into our behavior creates an ideal space for learning, where we can all feel comfortable engaging with challenging tasks and ideas. In addition, you are expected to be familiar with the standards outlined in the Boise State University Student Code of Conduct. If you have concerns about the Shared Values or see anyone in class, including your instructor, struggling to uphold them, you are encouraged to share your concerns. My goal as a teacher is to provide you with effective tools and space to think critically about issues that affect everyone as students, citizens, and humans. **You can succeed in this course!**

Expectations for Instructor

Here are some things you can expect from me to help you be successful:

Prepare for class / Actively participate in class

- I will teach using different tools and methods to respect the diversity of learning styles;
- I will present significant questions and different responses to those questions, but I will not present the "right answer" to the big questions of the course;
- I will endeavor to respond to all student inquiries promptly. Note that any arrangements made regarding the class (e.g., rescheduling assignment due dates) must be documented via e-mail, even if

we discuss an arrangement over Zoom. *If there is no e-mail exchange documenting the arrangement, I didn't agree to it!*

Respect students and the community
- I will encourage any perspective about the questions raised in our course that can be reasonably defended with evidence;
- I will appreciate the diversity in the subject of this course as well as in our classroom community and endeavor to promote inclusivity in the spirit of our Statement of Diversity and Inclusivity;
- I will always be open to and encourage constructive conversation about how we can make our collective experience better.

Expectations for Students

Here are similar things expected from you:

Prepare for class
- Check our Blackboard course website and your Boise State e-mail account regularly. Come to class Zoom meetings having completed the readings and any required assignments;
- Expect to spend a few hours per week outside of class on readings and coursework;
- Academic Integrity is a critical part of the value of Academic Excellence. Upholding academic integrity in all work provides you with the opportunity to fully engage with the material being investigated and clearly assert your evidence-based findings. For that reason, all your submitted work should represent your current ideas and efforts or be cited (including any material from another course); otherwise, the action constitutes academic dishonesty, which will result in grade penalties, failure in the course, or dismissal from the Program and/or the University. See the Boise State University Student Code of Conduct and academic integrity page for more details. *Collaboration is allowed (and encouraged) for all group assignments*;
- When emailing faculty, please put the class name and a brief description in the subject line. (Example: UF 100 Unit II Project). Start with a greeting, be respectful and clear, and end with your name.

Actively participate in class
- Answer questions, complete in-class assignments, and contribute to group discussions and projects. Unless there is an agreement made with the instructor, missed assignments cannot be completed;
- You should arrive on time and stay through the end of each Zoom session;
- Absences: Attendance is not required for this course but strongly recommended. That said, you are responsible for attending Zoom sessions, whether your absence is university-approved. There are really no "excused" absences. For a university-approved absence, you should provide a formal letter from the appropriate authority prior to the absence. If you have a question regarding an absence, please discuss it with the instructor. However, absences related to COVID-19 will be accommodated.
- Students needing accommodations should contact the Educational Access Center (eacinfo@boisestate.edu - 208-426-1583). All accommodations must be approved prior to being implemented.

Respect each other and the community

This class, like this university, is a community. Communities contain diverse identities and perspectives, and the most successful communities respect that diversity as a key to collective improvement. In alignment with the Boise State University statement of diversity and inclusivity, all community members are encouraged to contribute their perspectives and experiences. We encourage you to enrich yourself and the community by listening to others and sharing your thoughts. If you feel isolated from our classroom community in some way, please let your instructor know so that we can work together to create a welcoming space for you to feel like part of the community.

Student Well-Being

If you are struggling for any reason (COVID, relationship, family, or life's stresses) and believe these may impact your performance in the course, I encourage you to contact the Dean of Students at (208) 426-1527 or e-mail deanofstudents@boisestate.edu for support. Additionally, if you are comfortable doing so, please reach out to me, and I will provide any resources or accommodations that I can. If you notice a significant change in your mood, sleep, feelings of hopelessness or a lack of self worth, consider connecting immediately with Counseling Services (1529 Belmont Street, Norco Building) at (208) 426-1459 or e-mail healthservices@boisestate.edu.

What to do if the class zoom session crashes

Almost without a doubt, the Zoom session will crash during class at some point this semester. In that case, wait a minute and then try to log back in. If after 10 minutes, you are not able to log back in, we will consider that class meeting to be cancelled, and I will send a follow-up e-mail as soon after as I possibly can.

Covid Disruptions

I would be amazed if there aren't some significant disruptions during the course as the result of this global pandemic. I completely sympathize with the struggles you're facing (I myself have a young child at home whom I must home-school this semester), so I will make any accommodation I reasonably can to help you be successful. But I can only help you if you contact me. Please get in touch as soon as you encounter some difficulty so we can try to figure out a solution - bjackson@boisestate.edu.

If you've read the syllabus this far, thanks! Please send me an e-mail before Friday, Sep 4 for an extra credit bonus and include answers to the following questions in your e-mail:

- What is a course policy that you think is a good idea?
- What is a course policy you think we ought to reconsider?
- Which unit project do you think will be the most interesting?
- What was something you found confusing?

Course Schedule and Assignment Due Dates

Date	Plenary Topic	Plenary Assignment	Discussion Section Topic	Project Due
Tue, Aug 25	Welcome	How to Manage Class Discussions	Semester Goal-Making	
Thu, Aug 27	Introduction to the Universe	Big Questions		
Tue, Sep 1	Motions of Celestial Objects	Celestial Sphere	Becoming a Learner, Ch. 1	
Thu, Sep 3		Using a Planisphere		
Tue, Sep 8	Lunar Phases	Lunar Phases Simulation	BAL, Ch. 2	
Thu, Sep 10		Lunar Phases Worksheet		
Tue, Sep 15	The Reason for the Seasons	Seasons Worksheet	BAL, Ch. 3	
Thu, Sep 17				
Tue, Sep 22	The Science & History of Astronomy	Testing Astrology	BAL, Ch. 4	
Thu, Sep 24	Unit I & II Projects Check-In	Unit II Project Draft Script		
Tue, Sep 29	Introduction to the Solar System		BAL, Ch. 5	Library Badges
Thu, Oct 1	Formation of the Solar System	Half-Life of M&Ms		
Tue, Oct 6	Gravity and Planetary Orbits		Strange New Worlds, Ch. 1	
Thu, Oct 8	Detecting Exoplanets - Direct Imaging/Astrometry			
Tue, Oct 13	Unit III Project Check-In	Unit III Project Proposal/Bibliography	SNW, Ch. 2	
Thu, Oct 15	Detecting Exoplanets - Radial Velocity	Extrasolar Planet Radial Velocities		
Tue, Oct 20	Detecting Exoplanets - Transits	Detecting Exoplanets Simulation	SNW, Ch. 3	
Thu, Oct 22	Unit III Project Check-In	Unit III Project Proposal/Bibliography		
Tue, Oct 27	**NO CLASS MEETINGS!**	UF100 Probe Mission	SNW, Ch. 4	Unit I & II
Thu, Oct 29	**NO CLASS MEETINGS!**	UF100 Probe Mission		
Tue, Nov 3	Origin and History of Terrestrial Life	Greenhouse Simulation	SNW, Ch. 5	
Thu, Nov 5				
Tue, Nov 10	Planetary Habitability	The Habitable Zone	SNW, Ch. 8	
Thu, Nov 12				
Tue, Nov 17	Finding Extraterrestrials	Drake Equation and Fermi	SNW, Ch. 9	

		Paradox		
Thu, Nov 19	Unit III Project Check-In	Unit III Project Draft Script		
Tue, Nov 24	**THANKSGIVING BREAK**			
Thu, Nov 26	**THANKSGIVING BREAK**			
Tue, Dec 1	Final Project Videos - NO CLASS MEETINGS!			
Thu, Dec 3	Final Project Videos - NO CLASS MEETINGS!			
Tue, Dec 8	Final Project Videos - NO CLASS MEETINGS!			Unit III & Extra Credit
Thu, Dec 10	Final Project Videos - NO CLASS MEETINGS!			
Thu, Dec 19	NO FINAL - Have a good break!			