

## **Exploring the Universe through hands-on applications of astronomical tools**

[http://devinsilvia.com/teaching/UGS101-304\\_Fall2016.html](http://devinsilvia.com/teaching/UGS101-304_Fall2016.html)

### **Course Description**

The Universe is a big and complicated place and scientists have been working for centuries to try understand its nature. To achieve this understanding, it is important to make observations, ask questions about those observations, and collect evidence that provides answers to those questions. Sometimes that evidence leads to new questions and the process continues.

In this course, you will employ common scientific practices to acquire understanding about the nature of the cosmos by working with real astronomical data. You will work collaboratively with your fellow classmates and engage in astronomical inquiry. By the end of the course, you will be able to:

- Formulate questions that can be investigated based on available data
- Design a method for collecting evidence from the data to answer such questions
- Collect and interpret that evidence in order to reach a justifiable conclusion

Along the way, you'll learn a bit about galaxy structure and classification as well as the properties of known extrasolar planets and how they compare to the planets in our solar system.

### **Course Activities**

This course will contain 2-3 inquiry-based learning modules. Each module will require you to work in a team of 2-3 people to complete the activity. At the end of the course, depending on the time left, we may end up doing a peer-review activity in which you are asked to critique a scientific report produced by another group or individual.

#### Planned modules:

Module 1: Understanding galaxy classification and properties using Galaxy Zoo.

Module 2: Exploring the nature of Extra-solar planets using the Interactive Extra-solar Planets Catalog

Module 3: "To be decided" - whether or not we complete a third module will depend on the pacing of the course. If time allows for this module, the selected focus will be chosen based on student and instructor interest.

Modules 1 and 2 were inspired by and developed using "Engaging in Astronomical Inquiry" by Slater, Slater & Lyons (2010).

## Course Meeting Time and Location

This course only meets for seven weeks, running from October 4th to November 15th. We meet on Tuesdays from 10:20am - 12:10pm in 218 Natural Resources Building.

## Course Expectations and Grading Information

This course will be graded following MSU's numerical grading system which consists of the following scale: 4.0 - 3.5 - 3.0 - 2.5 - 2.0 - 1.5 - 1.0 - 0.0.

What does this mean for you? Since this class takes place almost exclusively in the classroom, with minimal coursework required outside of our normal meeting time, regular attendance and active participation is required.

Absences: Unexcused absences will result in receiving **failing grade** for the course. If you have a conflict with any of the class sessions, you must contact me at least one week in advance of the conflict with an explanation as to why you will be unable to attend. Unexpected absences due to illness or other emergencies must be explained promptly and with supporting documents (e.g. a doctor's note) when appropriate. In some cases, make-up work may be required in order to earn credit for the course.

Participation: Since the majority of this course will require group work and active participation by every student, your grade for the course will be assigned largely based on whether or not you are sufficiently engaged in course activities and group discussions. If at any point I feel that you are not sufficiently engaged and active in the course, I will let you know so that you can adjust your participation accordingly and ensure that you receive credit. In the event that we do a final project, you will receive a rubric for how that project will be graded. The final project will be no more more than 20% of the grade for the course. Also, if I find that you're using the computers for activities other than those related to the course, you risk receiving **a failing grade**.

## Instructor Information

Dr. Devin W. Silvia  
National Science Foundation Astronomy and Astrophysics Postdoctoral Fellow  
Department of Physics and Astronomy

Office: 3248 Biomedical and Physical Sciences  
Email: [dsilvia@msu.edu](mailto:dsilvia@msu.edu)  
Slack username: devinsilvia

Office Hours: For classes of this size, I often find that it is easiest to schedule office hours by appointment. If you have any questions or concerns about the course, please send me an email or message me on Slack so that we can set up a time to meet.

## Other Information

Classroom behavior: Respectful and responsible behavior is expected at all times, which includes not interrupting other students, turning your cell phone off, refraining from non-course-related use of electronic devices, and not using offensive or demeaning language in our discussions. Flagrant or repeated violations of this expectation will result in ejection from the classroom.

Email and Slack: At times, I will send out important course information via email. This email is sent to your MSU email address (the one that ends in "@msu.edu"). You are responsible for all information sent out to your University email account, and for checking this account on a regular (daily) basis. In addition, we will use the course's Slack page (<https://ugs101s304.slack.com/>) for the majority of course communication, you are expected to sign up for an account and check Slack for important course information. You are also encouraged to use Slack to discuss course activities and contents with your classmates.

Academic Honesty: Intellectual integrity is the foundation of the scientific enterprise. In all instances, you must do your own work and give proper credit to all sources that you use when appropriate — any instance of submitting another person's work, ideas, or wording as your own counts as plagiarism. This course adheres to the policies of academic honesty as specified in the General Student Regulations 1.0, Protection of Scholarship and Grades, and in the all-University statement on Integrity of Scholarship and Grades, which are included in Spartan Life: Student Handbook and Resource Guide. Students who plagiarize will receive a **failing grade** in the course. In addition, University policy requires that any cheating offense, regardless of the magnitude of the infraction or punishment decided upon by the professor, be reported immediately to the dean of the student's college.

Accommodations: If you have a university-documented learning difficulty or require other accommodations, please provide me with your VISA as soon as possible and speak with me about how I can assist you in your learning. If you do not have a VISA but have been documented with a learning difficulty or other problems for which you may still require accommodation, please contact MSU's Resource Center for People with Disabilities (355-9642) in order to attain current documentation.