

AST 251 – Life on Other Worlds

Summer 2019 – Dr. Ian Shelton

Course Outline

Course Description, Prerequisites & Exclusions

This course is an introduction to the Field of astrobiology, where you will be acquainted with a variety of topics in astronomy, earth sciences, biology and biochemistry which are required for understanding our search for life originating elsewhere in the universe. We will also discuss historic and modern attempts to discover the existence of life (and in particular intelligent life) beyond our own planet, and the challenge of interstellar travel.

Our goal is to make the course accessible to everyone, so the primary instructional approach is conceptual, not mathematical. Students from all programs who are curious about the subject and willing to learn the necessary material can excel in this course. **IMPORTANT: AST 251 cannot be taken for credit by those who are taking or have previously taken AST 221H or AST 222H.** If you are unsure whether you can take AST 251 for credit, consult Andrew Apong (apong@astro.utoronto.ca) in the main astronomy office (AB101).

Important Dates

Lectures: May 7 to June 13 on **Tues & Thurs** at **18:10-20:00** in MP 103 (*McLennan Physical Laboratories, entrances at 255 Huron Street, 60 St. George Street, and from Russell Street near Huron*)

Project: start Tuesday, **May 14**; **DUE** Thursday, **June 7**

1st Midterm: Tuesday, **May 21** at 18:10-19:00 (room TBA, details pending)

2nd Midterm: Tuesday, **June 4** at 18:10-19:00 (room TBA, details pending)

Final Exam: Week of **June 19-26**, 3-hours (date, time & room TBA)

Quercus (Canvas)

All students are responsible for daily monitoring of the course website page hosted at:

q.utoronto.ca

All important announcements will be posted to the course website. It is your responsibility to check for them. Reading Lists, Assignments, lecture slides and grades will also be posted there. If you can't access or are having trouble using the course website, please contact:

q.help@utoronto.ca

Ways to Contact Us to Get Help

ONLINE:

- **Four TAs** are assigned to the course to share the task of monitoring emails and providing assistance. **Any questions of a non-personal nature** should be sent **via e-mail** to:

ast251sum@astro.utoronto.ca

- For a matter that specifically requires **the Professor**, please send your email to:

shelton@astro.utoronto.ca

IN PERSON:

- send email to the **ast251sum** email address above to request an appointment with a TA;
or
- come talk to me at:

Professor's Office Hours: Tue & Thu @ 16:30-17:30 in AB225*

(* AB = Astronomy Building @ 50 St. George Street... 2nd floor, North end of its East wing)

Required Materials

The following material is required for students enrolled in this course. It can be obtained through the university bookstore.

- Textbook: **Astrobiology** by Charles Cockell (ISBN13: 9781118913338 or ISBN10: 1118913337).

Tutorials

There will be **OPTIONAL** Question-and-Answer sessions held before each Midterm test and the Final Exam, provided as a pre-class face-to-face session and several on-line sessions. An initial schedule of dates, times and topics will be announced during the first week of the course, with updates posted on the course website.

Grading Scheme

Assignments (~1 per week for 6 weeks)	10%
Project Report	10%
1 st Midterm	15% each OR 20% each
2 nd Midterm	
Final Exam	50% OR 40%

The two midterms will be weighted equally. If your combined % average on the two midterms is higher than your % grade on the final exam, then your midterms will count for 20% each; otherwise, your midterms will count for 15% each.

We have a generous policy of dropping low marks:

- Your lowest **ONE** assignment mark will not be used when calculating your final grade.

Illnesses, Absences, and Medical Notes

As described under the **Grading Scheme** section, we allow you to miss some coursework without having it affect your final grade. If you miss classes or assignments which can be covered by the automatically dropped lowest marks, **you do not have to submit documentation**. However, if you must miss additional classes or assignments, you must submit appropriate documentation **to your college registrar**. If your college registrar permits you more absences than are allowed by the grading policy, you will be allowed an accommodation for the additional missed assignments. For example, if you miss two weeks of classes and your absence is approved by your college registrar, you will be allowed to drop the default plus ONE additional assignment and the value of the remaining assignments will be increased accordingly.

If you are absent from a midterm, you MUST notify your professor as soon as possible, preferably by e-mail on the day of your absence. And you MUST provide a [U of T Verification of Student Illness and Injury Form](http://www.illnessverification.utoronto.ca/) (<http://www.illnessverification.utoronto.ca/>). If you do so promptly, you may be allowed to have the value of your missed midterm transferred to increase the value of the other midterm and the final exam accordingly. If you feel ill prior to a test and you think your illness will impair your test performance, **DO NOT WRITE THE TEST**. Under **NO CIRCUMSTANCES** will students be allowed to re-write tests. An absence for religious observances is permitted, but three weeks advance notification is usually required.

Assignments

Assignments will be provided and completed online at the course website. You generally have one week to complete each assignment.

When new assignments are posted, an announced will usually be made in class and via the course website. But it is your responsibility to monitor the course website to ensure you see and complete all of the assignments **by their posted due dates**. **DO NOT** leave assignments till the last minute to complete!

Research Project

A Research Project will be assigned and fully **explained in the 2rd week of classes**. The objective of the Project is for you to study a set of provided data using critical thinking skills and the knowledge you acquire in this course towards deducing the properties of the object(s) being observed. Your Report is due in the second last week of classes.

Examinable Material

The examinable materials for this course will consist of material covered in lectures, assigned readings and in the assignments.

Grade Disputes

You are encouraged to review your graded materials to ensure that they have been graded accurately and the marks added correctly. Unfortunately, in a course this large, with thousands of marks to assign

and record, there are bound to be a few errors. If you discover a discrepancy, you need to let us know immediately. **Midterms tests can only be remarked if the short-answer questions were written in pen.**

Academic Integrity

Assignments, exams and the project will be graded based on the correctness AND CLARITY of your solutions. Although you are free to discuss the assignments with each other in general terms, any evidence of copying or other forms of academic dishonesty will be treated very seriously. For example, it's okay to ask your friends to remind you how to use Kepler's Laws or how an "inverse-square" law works, but it's not okay to ask them to show you their solutions or for them to tell you explicitly how to solve an assigned problem. Similarly, it's not okay to copy answers or segments of answers from the textbook, Wikipedia, Yahoo Answers, or any other source. Your project report must be written entirely in your own words and must demonstrate your own understanding of the material. It must not be a re-worded version or "paraphrased" version of someone else's work. **IF WE DETERMINE THAT YOU HAVE CHEATED ON EVEN ONE ASSIGNMENT, WE MAY ASSIGN YOU A GRADE OF ZERO FOR ALL OF THE ASSIGNMENTS FOR THE WHOLE COURSE.**

*(From Appendix D of the **Academic Integrity Handbook**...)*

Academic integrity is one of the cornerstones of the University of Toronto. It is critically important both to maintain our community which honours the values of honesty, trust, respect, fairness, and responsibility and to protect you, the students within this community, and the value of the degree towards which you are all working so diligently.

According to Section B of the University of Toronto's *Code of Behaviour on Academic Matters* (<http://www.utoronto.ca/govcncl/pap/policies/behaveac.html>) which all students are expected to read and by which they are expected to abide, it is an offence for students to:

- Use someone else's ideas or words in their own work without acknowledging explicitly with a citation that those ideas/words are not their own, i.e. to commit plagiarism. In particular, to copy answers to short answer assignment problems from any website, the textbook, another student, or any other source, even if re-worded.
- Include false, misleading, or concocted observations or citations in their work.
- Obtain unauthorized assistance on any assignment or provide unauthorized assistance to another student. This includes showing another student your own solutions.
- Submit their own work for credit in more than one course without the permission of the instructor.

There are other offences covered under the Code, but these are the most common. You are instructed to respect these rules and the values which they protect.

AST 251: Homework

IT'S VERY IMPORTANT TO COMPLETE ANY ASSIGNED READINGS BEFORE THE CLASS WHERE THE MATERIAL WILL BE COVERED. Please try not to fall behind!