# Descriptive Astronomy – ASTR 101
## Summer 2018

### Class time:
Monday – Thursday 10:30 am – 12:25 pm

### Name of Faculty:
Dr. M. Suzanne Taylor

### Contact details:
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## Course Description
Studies the solar system, stellar structure and evolution, galaxies and cosmology, emphasizing the historical development and observational basis for our understanding of the universe. (UE Outcome 8)

## Credit Hour Policy Statement
This class meets the federal credit hour policy of:
- □ Standard lecture – e.g. 1 hour of class with an expected 2 hours of additional student work outside of class each week for approximately 15 weeks for each hour of credit, or a total of 45-75 hours for each credit.
- □ To be completed before sending out to faculty

## General Education Objective
This course meets the General Education requirements for:
- UE Outcome 8: Scientific Literacy

## Learning Objectives
Listed below are the Learning Objectives for the course:
In this course students will:

a. Develop foundational knowledge in astronomy  
b. Develop an understanding of the nature and process of science  
c. Demonstrate the ability to use scientific methodologies  
d. Examine quantitative approaches to study natural phenomena

Furthermore, this course has been designed to address the following learning competencies:

### Inquiry and Analysis
- Select or Develop a Design Process: Select or develop elements of the methodology or theoretical framework to solve problems in a given discipline.
- Analyze and Interpret Evidence
  a. Examine evidence to identify patterns, differences, similarities, limitations, and/or implications related to the focus.
  b. Utilize multiple representations to interpret the data.
- Draw Conclusions: State a conclusion based on findings.

### Quantitative Literacy
- Interpret Information: Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
- Represent Information: Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).
Assessment and Grading Criteria

- **Tests and Final (40%)**: There will be four one-hour in class exams. A single page (one side, 8.5X11) of notes will be allowed in the exams. Exams will be on material covered since the previous exam. The Final exam will be a brief cumulative exam covering the whole term. This exam will count for 5% of your grade. A double-sided 8.5X11 page of notes will be allowed in the final.

- **Participation and professionalism (25%)**: The participation part of your grade includes daily attendance and participation in in-class activities, as well as participating in evening observing sessions, field trips and other outside of class activities. Additionally, students who are regularly late to class, disruptive, or using electronics (such as cell phones) inappropriately may lose up to 40% of their participation and professionalism grade (resulting in a one letter grade deduction from their final class grade).

- **Homework and Projects (35%)**: Throughout the term you will be assigned a variety of homework and observing projects. Homework assignments are to be completed independently (unless otherwise specified) and may involve reading assignments, writing assignments, computer-based investigations, and concept sketches. Projects may include both in-class and an out of class components and will general be completed in small groups. The projects are designed to provide you with hands-on experience making astronomical observations and learning from real astronomical data.

**Grading scale:**  
A = 93% - 100%, A- = 90%-93%, B+ = 87%-90%, B = 83% – 87%, B- = 80% - 83%, C+ = 77%-80%, C = 73% – 77%, C- = 70% - 73%, D+ = 67% = 70%, D = 63% - 67%, D- = 60% - 63%, F = < 60%

The instructor reserves the right to lower the grading scale at the end of the semester as deemed appropriate. This will only improve your grade.

Teaching Methods


*This text is a workbook that we will use in class on a daily basis. You are strongly encouraged to purchase a new copy of this book as used copies often have the worksheets already completed. Please bring this book to class each day.

Teaching Methods: Classes will consist of a mix of traditional lecture, “Think-Pair-Share” activities, Lecture Tutorials, and other peer-teaching activities. Some class periods may be devoted to active investigations in astronomy. Additionally, occasional afternoon field trips and evening observing activities will enhance the learning experience.
Schedule of Topics

Week 1: The view from Earth - Scales, Positions, and Motions of the night sky
Week 2: How it all works – Kepler’s laws, Gravity, and the Solar system
Week 3: Brave new worlds – Jovian planets, Asteroids, and Exoplanets
Week 4: A sky full of stars – The Sun, Stellar properties, and Stellar evolution
Week 5: Island universes – The Milky Way and Galaxies

Tentative exam schedule:
- Monday, June 4th
- Monday, June 11th
- Tuesday, June 19th
- Final Exam, Tuesday, June 26th

Schedule of Assignments

Homework assignments
- One or two concept sketches will be assigned each week
- Approximately one short (0.5 – 2 page) writing assignment will be assigned each week
- Several observing projects will be assigned over the course of the term. Some projects may span
Additional assignments not falling into the above categories may occasionally be assigned either in
addition to the above assignments or as a replacement for one of the above assignments

Reading assignments (depending on class pacing, these dates may change)
Readings should be completed prior to class on the date indicated. All readings are from The Cosmic
Perspective: Fundamentals

Week 1
- May 29: Chapter 1, Section 2.1
- May 30: Sections 2.2, 2.3
- May 31: Section 3.1 through Tycho, Section 3.2

Week 2
- June 4: Section 3.1 Kepler (Pages 39-40)
- June 5: Rest of Section 3.1, Section 3.3
- June 6: Chapter 4, Section 5.1 through page 79
- June 7: Rest of Chapter 5

Week 3
- June 11: Section 6.1 through page 100
- June 12: Rest of Chapter 6
- June 13: Page 132, Chapter 7

Week 4
- June 18: Chapter 8
- June 19: Section 9.1
- June 20: Section 9.2, Chapter 10
- June 21: Chapter 11
## Attendance Policy

Harlaxton College operates a mandatory attendance policy that is binding on all faculty and students.

In the Summer Semester only ONE unexcused absence will be allowable. Additional unexcused absences will attract an overall grade penalty of a third-of-a-letter grade for each unexcused absence (e.g. one additional unexcused absence would result in an A- being reduced to a B+).

Students are responsible for the academic consequences of their failure to attend class.

## Drop/Add and Withdrawal Policy

The course is subject to the UE drop/add policy as modified to apply to a summer semester of study in the UK context.

## Disability Policy

It is the policy of the University of Evansville (Harlaxton College) to make reasonable accommodations for students with properly documented disabilities. University of Evansville students should contact the Office of Counselling and Health Education to seek help with this. Students from Partner Universities/Colleges should contact their own relevant student support office. For assistance whilst at Harlaxton students should contact the College Secretary whose office is located adjacent to the Principal’s office.

Written notification to faculty from the College Secretary is required for academic accommodations to be implemented.

## Honor Code

All students at the University of Evansville (Harlaxton College) agree to and are bound by the principles and practice of the honor code:

> ‘I understand that any work I submit for course credit will imply that I have adhered to this Academic Honor Code: I will neither give nor receive unauthorized aid, nor will I tolerate an environment that condones the use of unauthorized aid.’

The full Honor Code is available online:
[https://www.evansville.edu/offices/deanstudents/downloads/honorcode.pdf](https://www.evansville.edu/offices/deanstudents/downloads/honorcode.pdf)