PH104 - Descriptive Astronomy Syllabus

General Information

Instructor Information and Availability

Instructor name: Dr. Ben Stanley (he/him)
E-mail address: stanleb@linnbenton.edu
Office hours: Friday 1-2 pm, (or available by appointment)
Office: https://linnbenton.zoom.us/j/95145937681, Password: PH104

Course Information

Winter 2022 CRN: 31847 Number of credits: 4

Virtual time and days (not required): 1-2 pm on Tu/W
Classroom: https://linnbenton.zoom.us/j/99269859056, Password: PH104

Prerequisites:

MTH 075 Variables and Linear Equations or equivalent with a grade of "C" or better.

Course Materials

Required:

- Textbook: OpenStax Astronomy, by Fraknoi, Morrison, Wolff
    - This is text is an open, educational resource and is available for free

Course Description

An introductory course covering the historical and cultural context of discoveries concerning planets and stars and their motion. Topics include models and the scientific method, astronomical tools, the solar system, star and stellar evolution, galaxies and cosmology.

Plan for the term due to COVID-19:

There is no required class time, though I do plan to hold class as listed above. If you are able to attend the lecture recording times, I encourage you to do so, but all lectures will be recorded and posted to Moodle afterward. I will also be available via Zoom during office hours or by appointment. This class will therefore be self-paced within each week. Students are expected to complete the assignments by the due dates primarily on their own. If you have questions outside of my office hours, please email me but do not expect an immediate response at all hours.

Student Learning Outcomes

1. Solve scientific problems with quantitative methods.
2. Describe the physical nature of the universe at the atomic, planetary, stellar, and galactic scales.
3. Explain how light is used by astronomers to study the universe.
4. Describe key events in the history of science, with particular emphasis on astronomy, and their impact on society.
5. Describe and apply the process of scientific inquiry.

Class Policies

Behavior and Expectations

You are held accountable to the Student Code of Conduct, which outlines expectations pertaining to academic honesty (including cheating and plagiarism), classroom conduct, and general conduct. Academic dishonesty on exams will result in a zero for that exam.

Testing

- Quizzes and Exams are taken individually via Moodle, and are closed note/book except where noted on instructions.
- Once tests are graded, they cannot be made up.
- The Final Exam will be available on Moodle starting Monday (3/14) at 6 am and will close Wednesday (3/16) at 11:59 pm.

Grading

- 2 Exams = 100 points (50 points each)
- Comprehensive Final Exam = 100 points
- Labs = 120 points (15 pts each, 9 total, lowest score dropped)
- Reading Quizzes = 90 points (15 pts each, 7 total, lowest score dropped)

Total = 410 points

Final Grade Calculation:

- A = 410-369 points
- B = 368-328 points
- C = 327-287 points
- D = 286-246 points
- F = below 246 points

Exams: Exam 1 covers weeks 1-3. Exam 2 covers weeks 4-6. Each are 50 points. Exams will be taken via Moodle and will be open for 2 days.

Comprehensive Final Exam: This exam covers the entire 10 week course and will take place during Finals week via Moodle.

Labs: Labs will be completed individually and will become available each Wednesday at 2 pm. Lab reports are due by the following Tuesday by 11:59 pm. Labs cannot be made up but I drop your lowest score. Labs will be submitted via Moodle. **If you do not turn in 3 or more labs of the 9 labs you will fail the course due to the lab focused nature of this course.**

Reading Quizzes: I provide Reading Guides on Moodle. You will fill these out and use them as reference/notes for the Reading Quizzes taken via Moodle. I will drop your lowest score. Reading Quizzes open Mondays at 6 am and are due by the next day at 11:59 pm. Each Reading Quiz will check your understanding of the material from the previous week. There is no reading quiz covering Reading Guide #8 but these topics will be on the final exam.

Calculator Policy: Students may use **any calculator** (that is not a cell phone) on Moodle assignments. However, a calculator is not required for this course.

Incomplete grades (IN) will only be considered if a student has talked to me in advance, and a signed agreement between the student and myself is completed. IN grade is assigned only if the student has a good reason for making the request, has only the minority of coursework to complete, and has scored a C or better on work that has been submitted.

Late Assignment Policy

No work can be made up after it is returned to the class. Late homework is not accepted. **One lab and one homework will be dropped.**

College Policies

LBCC Email and Course Communications

You are responsible for all communications sent via Moodle and to your LBCC email account. You are required to use your LBCC provided email account for all email communications at the College.

Disability and Access Statement

LBCC is committed to inclusiveness and equal access to higher education. If you have approved accommodations through the Center for Accessibility Resources (CFAR) and would like to use your accommodations in this class, please talk to your instructor as soon as possible to discuss your needs. If you believe you may need accommodation but are not yet registered with CFAR, please visit the CFAR website at www.linnbenton.edu/cfar for steps on how to apply for services or call 541-917-4789.

Statement of Inclusion

To promote academic excellence and learning environments that encourage multiple perspectives and the free exchange of ideas, all courses at LBCC will provide students the opportunity to interact with values, opinions, and/or beliefs different than their own in safe, positive and nurturing learning environments. LBCC is committed to producing culturally literate individuals capable of interacting, collaborating and problem-solving in an ever-changing community and diverse workforce.

Title IX Reporting Policy

If you or another student are the victim of any form of sexual misconduct (including dating/domestic violence, stalking, sexual harassment), or any form of gender discrimination, LBCC can assist you. You can report a violation of our sexual misconduct policy directly to our Title IX Coordinator. You may also report the issue to a faculty member, who is required to notify the Coordinator, or you may make an appointment to speak confidentially to our Advising and Career Center by calling 541-917-4780.

Campus Police/Emergency Resources

You may review emergency services and resources at the LBCC Public Safety website. Campus Safety can be reached using the 'Code 2' button on any campus phone or by dialing x411 on campus or (541) 917-4440 off campus. Dial 911 for off campus emergencies.

Campus Resources

Learning Center

The Learning Center provides academic support and a comfortable place to study. It is located on the second floor above the Library. It also provides free tutoring services for all classes.

Learning Center Online: https://www.linnbenton.edu/current-students/study/learning-center/

I recommend all of their services. These are the resources I think are particularly helpful this class: Science Help Desk (all the way at the bottom), Tutoring Services, Math Help Desk

Roadrunner Resource Center

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Roadrunner Resource Center for support (Resources@linnbenton.edu, 541-917-4877, or visit the website https://www.linnbenton.edu/current-students/student-support/roadrunner-resource-center.php). The office can help students get connected to resources to help. Furthermore,

please notify me if you are comfortable in doing so. This will enable me to provide any resources, knowledge or connections that I may possess to help aid.

Linn-Benton Lunch Box

The LB Lunch Box provides an emergency supply of food for students in need.
https://www.linnbenton.edu/current-students/involvement/student-resources/lb-lunch-box.php

Other due to COVID-19:

The college has an amazing FAQ page about how the term will work (and how to access basic needs resources, such as food and rent if you need them).

If you do not have access to a computer, call the LBCC library at 541-917-4630. If you do not have internet access, there are many options.

Changes to the Syllabus

I reserve the right to change the contents of this syllabus due to unforeseen circumstances. You will be given notice of relevant changes in class, through a Moodle Announcement, or through LBCC e-mail.

Class Schedule

Due dates every week:

- **Labs are available on Wednesday and due the following Tuesday at 11:59 pm.**
- **Reading Quizzes/Exams are open Monday at 6 am through Tuesday at 11:59 pm.** Each Reading Quiz will check your understanding of the material from the previous week. Exam 1 covers weeks 1-3. Exam 2 covers weeks 4-6.

Week	Reading	Tuesday	Wednesday	Lab
1 (1/3)	1.1-1.5, 4.2-4.5, 4.7	Introductions Scientific models	Seasons, Lunar phases, eclipses	Lab 1: Scientific Measurements
2 (1/10)	2.1-2.2, 2.4, 3.1-3.4	**Reading Quiz #1** History of astronomy	Planetary motion and gravity	Lab 2: The Apparent Dome of the Sky
3 (1/17)	5.1-5.3, 6.1-6.4	**Reading Quiz #2** Light and spectroscopy	Telescopes	Lab 3: Spectral Analysis
4 (1/24)	7.1-7.2, 7.4	**Exam 1** NO LECTURE	Solar System: Overview	Lab 4: Our Solar System
5 (1/31)	8.3, 10.1, 10.3, 10.5 11.1-11.2, 13.1, 13.3, 14.1	**Reading Quiz #3** Solar system: Planets	Solar system: asteroids, comets, and meteorites	Lab 5: Parallax and Blackbody Radiation
6 (2/7)	9.1-9.2, 12.1-12.3, 15.1-15.3, 16.1-16.4, 21.4-21.5	**Reading Quiz #4** Solar system: rings, moons, exoplanets	The Sun	Lab 6: Internal Structures of Stars
7 (2/14)	17.1-17.3, 18.1, 18.4	**Exam 2** NO LECTURE	Measuring stars 1	Lab 7: The H-R diagram
8 (2/21)	19.1-19.4, 21.1-21.2, 22.1, 22.4	**Reading Quiz #5** Measuring stars 2	Life cycle of stars	Lab 8: Cepheid Variable Stars
9 (2/28)	23.1-23.2, 23.4, 24.1-24.5, 24.7	**Reading Quiz #6** Death of stars and supernovae	Relativity and black holes; Gravitational Waves	Lab 9: Expansion of the Universe
10 (3/7)	25.1, 25.3, 26.1-26.2, 26.5, 29.1-29.5	**Reading Quiz #7** The Milky Way; Galaxies	The Big Bang	No lab!
Finals		**Final exam will be available on Moodle during Finals week (3/14-3/16)**		