

# ASTRONOMY 306

## Observational Astronomy

### Fall 2021

**Instructor:** Dr. Sebastian Zamfir      Office: B-205 SCI Bldg.      Email: [szamfir@uwsp.edu](mailto:szamfir@uwsp.edu)

**Meeting Rooms/Times:**

Lecture (A113 SCI) – Monday and Wednesday 12:00-12:50 PM

Lab (B204 SCI): Thursday 8:00 – 10:30 PM

**Catalog Description:**

**ASTR 306. Observational Astronomy.** 3 cr. - Designed to provide direct experience in astronomical observations and their analysis. Involves nighttime observations with the 16-inch telescope in the campus observatory, the use of smaller portable telescopes, and computer-based exercises. Topics will range from CCD observations and processing, photometry, and astrophotography, to the interactive use of large online astronomical databases. 2 hrs lec, 2.5 hrs lab per wk.

Prerequisite(s): One of the following: ASTR 100, ASTR 205, or ASTR 206

**Office Hours:**

Monday: 1 – 2 PM    Tuesday: 12 – 2 PM    Wednesday: 1 – 2 PM    Thursday: 11 AM – 12 PM

**Textbook:** *Observational Astronomy (2<sup>nd</sup> Ed.)* by Birney, Gonzalez, Osper

**Other required** materials: *a portable scientific calculator (graphing capabilities not needed)*

**Course website:** <https://uwsa.instructure.com/courses/439431>

Log in using your UWSP login and password. ***This website will be used for posting grades, lecture and lab notes, homework assignments, study-guides, and, very importantly, class announcements, etc.***

**Learning Outcomes:**

*Upon successful completing this course, students will be able to:*

- Understand coordinate systems used in finding and recording celestial objects
- Set up and use common types of telescopes
- Locate celestial objects of interest using telescopes with and without automated pointing systems
- Perform and interpret images/observations with electronic detectors
- Analyze datasets using simple mathematical models
- Interact with large, online databases, extract and analyze relevant information from them
- Carry out and report a complete research project, from concept and data collection to analysis and conclusions

**Clear Sky Chart for UWSP Observatory:**

<http://www.cleardarksky.com/c/UWSPObWIkey.html?1>

**Grading Policies:**

You will have the following contribution to your final grade:

**Lab reports 45%**

**Final exam 20%**

**Homework 15%**

**In-class quizzes 5%**

**Final Research Project 15%**

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**TOTAL: 100%**

Your current grades updated typically every week. If you have any questions on the grades listed, please contact me immediately so any errors can be corrected.

The final letter grade will be assigned according to the following scale:

A → 93-100%	A- → 90-92.99%	
B+ → 87-89.99%	B → 83-86.99%	B- → 80-82.99%
C+ → 77-79.99%	C → 73-76.99%	C- → 70-72.99%
D+ → 67-69.99%	D → 60-66.99%	F → less than 60%

**Attendance:**

Lecture attendance is **strongly recommended**. It is extremely important to an effective learning process. Although some lecture slides might be available on the course website, they are not necessarily complete. They are meant only as an outline of a subject. Not everything that we talk about in classroom is on the slides and what is on the slides is not always self-explanatory. Frequently, I will give quizzes during the lecture time. They will have a 5% contribution toward the final grade.

**The scheduled final exam will be “in-class” (no take-home exams).**

Laboratory attendance is **mandatory**. The laboratory is an integral part of the Astronomy 306 course. A missed lab will automatically bring a zero contribution to the corresponding lab grade. **Failing the lab component of the class (scoring below 60%) will result in a failing grade for the ENTIRE Astr306 course.**

**Laboratory work:** The labs will account for 45% of the final grade. **The lowest lab grade will be dropped.**

To get credit for lab work, attendance is mandatory (I emphasize that one major objective of the lab is to allow you to develop group-working skills). You do not get any credit if you do not attend the lab. **Each lab report is due at the end of the laboratory period.** If a lab is missed for any reason, that lab will be the one dropped when calculating the lab grade. Even if a lab is missed, the student is responsible for any material covered in that lab. **There are no make-up labs!**

**Final exam:** A **comprehensive/cumulative** final exam will be given during finals week, on Monday, December the 13<sup>th</sup> (10:15 AM – 12:15 PM). It is worth 20% of your final grade.

***There are no make-up exams. In the case of an unfortunate event (illness, death in the family, accident, etc.) please contact me before the exam (if possible) so that we could make proper arrangements. It is your responsibility to provide me with a valid doctor excuse for any illness that prevents you from fulfilling the requirements of this class.***

**Homework:** I will hand out a homework assignment almost every week. I will emphasize the due date. Homework assignments will typically be due a week later. **No homework will be accepted**

**after the indicated due date/time.** The lowest grade of all homework assignments will be dropped. All homework will account for 15% of your final grade.

**Research final project:** A research project will be assigned sometime in the second half of the semester; it is worth 15% of your final grade. You will be working as a group on putting together and presenting the project. We'll set aside the lecture and/or lab time during the last week of regular classes for group presentations.

**Absences due to Military Service:**

You will not be penalized for class absence due to unavoidable or legitimate required military obligations, or medical appointments at a VA facility, not to exceed two (2) weeks unless special permission is granted by the instructor. You are responsible for notifying faculty members of such circumstances as far in advance as possible and for providing documentation to the Office of the Dean of Students to verify the reason for the absence. The faculty member is responsible to provide reasonable accommodations or opportunities to make up exams or other course assignments that have an impact on the course grade. For absences due to being deployed for active duty, please refer to the <https://www.uwsp.edu/finaid/veteran-services/Pages/default.aspx>

**Equal Access for Students with Disabilities:**

Students with special needs should contact the Office of Disability Services as soon as possible (<http://www.uwsp.edu/disability/Pages/default.aspx>) in order to request suitable accommodation. UW-Stevens Point will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities. The modifications should not affect the substance of educational programs or compromise academic standards; nor should they intrude upon academic freedom. Examinations or other procedures used for evaluating students' academic achievements may be adapted. The results of such evaluation must demonstrate the student's achievement in the academic activity, rather than describe his/her disability.

*If modifications are required due to a disability, please inform the instructor, and contact the Disability and Assistive Technology Center to complete an Accommodations Request form. Phone: 346-3365 or Room 609 Albertson Hall.*

**Religious Beliefs Accommodations:**

It is UW System policy to reasonably accommodate your sincerely held religious beliefs with respect to all examinations and other academic requirements.

You will be permitted to make up an exam or other academic requirement at another time or by an alternative method, without any prejudicial effect, if:

- There is a scheduling conflict between your sincerely held religious beliefs and taking the exam or meeting the academic requirements; and
- You have notified your instructor within the first three weeks of the beginning of classes (first week of summer or interim courses) of the specific days or dates that you will request relief from an examination or academic requirement.

**Academic Honesty:**

**Students are expected to maintain the highest standards of academic integrity.** Common examples of misconduct include but are not limited to: copying the homework from others, looking at notes while taking an exam, talking to others while taking an exam. Just to avoid the embarrassment and severe consequences of misconduct it is strongly advised that if you need some clarification during an exam or while working on homework, you should ask the instructor/proctor for help. More information on your rights and responsibilities are available at: [http://docs.legis.wisconsin.gov/code/admin\\_code/uws/14.pdf](http://docs.legis.wisconsin.gov/code/admin_code/uws/14.pdf)

UWSP 14.01 Statement of principles

The board of regents, administrators, faculty, academic staff and students of the University of Wisconsin system believe that academic honesty and integrity are fundamental to the mission of higher education and of the University of Wisconsin system. The university has a responsibility to

promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors.

UWSP 14.03 Academic misconduct subject to disciplinary action.

Academic misconduct is an act in which a student:

- (a) Seeks to claim credit for the work or efforts of another without authorization or citation;
- (b) Uses unauthorized materials or fabricated data in any academic exercise;
- (c) Forges or falsifies academic documents or records;
- (d) Intentionally impedes or damages the academic work of others;
- (e) Engages in conduct aimed at making false representation of a student's academic performance; or
- (f) Assists other students in any of these acts.

**Help Resources**

Tutoring	Advising	Safety and General Support	Health
Tutoring and Learning Center helps with Study Skills, Writing, Technology, Math, & Science. 018 Albertson Hall, ext 3568	Academic and Career Advising Center, 320 Albertson Hall, ext 3226	Dean of Students Office, 212 Old Main, ext. 2611	Counseling Center, Delzell Hall, ext. 3553. Health Care, Delzell Hall, ext. 4646

**UWSP Service Desk**

The Office of Information Technology (IT) provides a Service Desk to assist students with connecting to the Campus Network, virus and spyware removal, file recovery, equipment loan, and computer repair. You can contact the Service Desk via email at [techhelp@uwsp.edu](mailto:techhelp@uwsp.edu) or at (715) 346-4357 (HELP) or visit: <https://www.uwsp.edu/infotech/Pages/ServiceDesk/default.aspx>

**In case of emergency:**

In the event of a medical emergency call 9-1-1 or use Red Emergency Phone. Offer assistance if trained and willing to do so. Guide emergency responders to victim.

In the event of a tornado warning, proceed to the lowest level interior room without window exposure. See [www.uwsp.edu/rmgt/Pages/em/procedures/other/floor-plans.aspx](http://www.uwsp.edu/rmgt/Pages/em/procedures/other/floor-plans.aspx) for floor plans showing severe weather shelters on campus. Avoid wide-span structures (gyms, pools or large classrooms).

In the event of a fire alarm, evacuate the building in a calm manner. Meet at DUC. Notify instructor or emergency command personnel of any missing individuals.

Active Shooter/Code React – Run/Escape, Hide, Fight. If trapped hide, lock doors, turn off lights, spread out and remain quiet. Call 9-1-1 when it is safe to do so. Follow instructions of emergency responders.

See UW-Stevens Point Emergency Procedures at [www.uwsp.edu/rmgt/Pages/em/procedures](http://www.uwsp.edu/rmgt/Pages/em/procedures) for details on all emergency response at UW-Stevens Point.

**Final note:** Common courtesy dictates that students attending a class should remain seated for the duration of class. While in class students should refrain from using phones, music players, headphones, etc. and should also refrain from gossiping/chatting while the professor is lecturing, and other students are listening and taking notes.

The following is a tentative list of potential topics and activities that will be covered in the lecture, labs, and homework. The selection is subject to change:

- Celestial sphere and systems of coordinates
- Patterns and motions in the sky; constellations
- Time, target names, charts, catalogs, databases
- Quantifying light; telescopes
- Optical telescopes; CCD and video cameras on the 16-inch telescope
- The Sun and solar observations
- CCD Astronomy, filters, image collection, image processing
- Stars – classification, luminosity classes, sizes, HR diagrams
- Magnitudes, CCD calibrations, effects of the atmosphere
- Star clusters, stellar photometry
- Kepler's laws
- Astrometry
- The Moon and lunar observations
- Extrasolar planets and methods of detecting extrasolar planets
- Galaxies, CCD processing and color imaging
- Radio Astronomy
- Astronomical Spectroscopy, spectra of stars, galaxies, and quasars

#### Face Coverings:

- At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the [Disability and Assistive Technology Center](#) to discuss accommodations in classes. Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

#### Other Guidance:

- Please monitor your own health each day using [this screening tool](#). If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646).
  - As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Maintain a minimum of 6 feet of physical distance from others whenever possible.
- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.
- Please maintain these same healthy practices outside the classroom.