ASTRONOMY 205
THE SOLAR SYSTEM
Fall 2021

Instructor: Dr. Sebastian Zamfir Office: B-205 SCI Bldg. Email: szamfir@uwsp.edu

ASTR 205. The Solar System. 4 cr. A contemporary perspective with emphasis on understanding basic principles of astronomy, coordinate systems, telescopes, planetary phenomena, and recent results of planetary exploration. 3 hrs lec, 3 hrs lab per wk. Prereq: MATH 100 or equiv or cons chair. GDR: NS; GEP: NSC

Delivery Format: IN PERSON

LECTURES (SCI A113): Monday & Tuesday 2 – 3 PM
LABS (SCI B204): Wednesday 2 – 5 PM

Office Hours:

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

Textbook(s): *21st Century Astronomy 6th Ed. by Kay, Palen & Blumenthal*

Supplementary textbook resources:
https://openstax.org/details/books/astronomy - free online textbook
http://astronomynotes.com/ - free online textbook

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

Course website: https://uwstp.instructure.com/courses/334806

Log on using your UWSP login and password. ***This website will be used for posting grades, lecture and lab notes, homework assignments, study guides, discussion sessions, etc. It is the main hub-interface for this course.***

Learning Outcomes – Upon completing this course, students will be able to:

• Explain major concepts, methods, or theories used in the Astronomy/Planetary Science to investigate the physical world.
• Interpret information, solve problems, and make decisions by applying natural science concepts, methods, and quantitative techniques.
• Describe the relevance of aspects of the Astronomy/Planetary Science to their lives and society.

Grading Policies – You will have the following contribution to your final grade:
Laboratory work 17%
Three midterm exams each 15%
Final exam 20%
Homework 10%
CANVAS Discussions 2%
Student Presentations 4%
Observing Project 2%

TOTAL: 100%

Your current grades will be kept updated as often as possible on CANVAS. If you have any questions/confusions on the listed grades, 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%

Laboratory work: The lab exercises are done in class. All labs account for 17% toward your final grade. You will be asked to work in groups of two. Each group will turn in a single lab report, hopefully the product of a constructive interaction between the members of the group. 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. **The lab reports are due at the end of the lab period**, unless indicated otherwise by instructor.

The lowest lab grade will be dropped. If a lab is missed for any reason, that lab will be the one dropped when calculating the (final) lab grade. Even if a lab is missed, the student is responsible for any material covered in that lab (for exams). **There are no make-up labs!**

Midterm Exams: There will be ***three*** midterm exams during the semester. They will be given during the regular lecture time, as noted in the course outline (tentative schedule). The dates are subject to change; the exams will be announced in class and on CANVAS at least a week ahead of time. Each midterm is worth 15% of your final grade and is based on the material covered in lecture, labs, and homework over the past weeks.

Final exam: A **comprehensive** final exam will be given during finals week as noted in the course attached schedule. 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*** *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.*

Note: The lowest grade of the three midterm examinations can be replaced by the grade of the final exam (preserving the predefined contribution of 15%). This can be done only if the final exam grade is higher than the lowest grade of all three midterms. However, if you miss a midterm, this rule does not apply (a zero will not get replaced by a grade equal to that of the final exam!!!). Only one midterm grade can be replaced!

Homework: I will post a homework assignment on the course website every week. I will announce in classroom when the homework is available on the website and emphasize the due date. Homework assignments will be **submitted online** by the due date/time (see instructions later in this syllabus). **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 10% of your final grade.

Student presentations: Every group/team of two students (basically the students sitting at the same table in the lab) will give two brief presentations to their fellow classmates during the last two lab periods scheduled in the semester. The first presentation will consist of a 1-2 slide(s) about a recent discovery/event in Astronomy/Space Exploration/Planetary Science covered by news media anytime during the current academic term (a press release for example). The second presentation will cover 10-15 minutes and will be on a predefined topic from a list. Proper instructions will be given by your

instructor in class. All members of a team will get the same grade for the presentations. The total contribution to the final grade is 4% (2% and 4%, respectively for the two distinct presentations).

CANVAS Discussions: There will be occasional Discussions on CANVAS, with specific/focused topics. Students are expected to contribute within the time window indicated, using decent, respectful words. Students are expected to use full, clear sentences. Please stay on the topic. You will only see your classmates' comments after you will have submitted yours. Participation in the discussion sessions will bring a max of 3% toward the final grade. **Any inappropriate comments will result in removing the student from the discussions from that point forward and the loss of corresponding discussion points.**

Observing project: You will have **one observatory visit** during the Fall 2021 semester. The observing project will be worth 2% of your final grade.

The observatory opens for the fall semester in mid-September (check the website http://www.uwsp.edu/physastr/plan_obs/Pages/observatory.aspx for more details and updated info). **When you go there identify yourself as being from Astr205 and arrive before 9:00pm.** The student in charge will have you view **six** astronomical objects through the telescope. **There will be an observing report form available at the observatory. After viewing the objects, fill out the form and have it signed by the student on duty, and return to me before the last lecture on Dec 10.**

The observatory is normally open Monday, Tuesday and Wednesday evenings from 8:30-10:00 pm. If the skies are cloudy, the observatory will be closed, and you need to go another time. The observatory can be contacted to determine if it will be open and has clear skies from any touch-tone phone by calling 346-2208 and selecting the observatory option (number 6) from the automated attendant. The announcement for the evening is usually not recorded until sometime after 7:30 pm since they do not want to close unless necessary.

I would advise you to go as early as possible since the weather is very unpredictable and I cannot guarantee that you'll have clear weather every Monday, Tuesday or Wednesday during the semester.

The observatory is located on the roof of the Science building. You need to use the southwest stairwell in the Science building and go to the fourth floor, room D402. It is usually very cold in the observatory at night since the dome is open, so please dress appropriately.

Suggestions for Studying:

1. **Attend lecture and lab regularly.**

The tests are predominantly based on lecture and lab material. If I have not lectured about a particular subject, it will not be on the test. I will often lecture around a picture or slide, and you are responsible for material discussed in class even if it is not written out on the slide. Some in-class clicker questions may be similar (or very similar) to some questions in the exams.

2. **Study regularly and constantly.**

There is a lot of material covered, most of it probably a complete novelty. The course builds up sequentially and adds a substantial number of new terms to your vocabulary. It is more and more difficult to keep up with the flow of the course if you do not grasp the new concepts as they arise. Postponing study for the night before an exam rarely pays off.

3. **Take advantage of the office hours.**

Do not hesitate to ask me any kind of questions related to the lecture, labs, homework or any other subject related to Astronomy.

4. **Try to attend actively.** Take organized notes during lectures and try to keep your mind connected to the subject that is presented. All members of a team should actively engage in the laboratory exercises.

5. **Find someone in the class to study with.**

Get to know your classmates well enough so that you can ask for lecture notes, get together to study for exams, etc.

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.

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 Accommodation
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.

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 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 for details on all emergency response at UW-Stevens Point.

Academic Honesty: Students are expected to maintain the highest standards of academic integrity.
More information on your rights and responsibilities are available at:
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 or at (715) 346-4357 (HELP) or visit:
https://www.uwsp.edu/infotech/Pages/ServiceDesk/default.aspx

Lecture materials and recordings for Astr205 are protected intellectual property at UW-Stevens Point. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or share lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

Tentative Sequence of Topics:

Why Learn Astronomy? Patterns in the Sky Motions of Astronomical Bodies Gravity and Orbits Light	The Tools of the Astronomer Birth & Evolution of Planetary Systems The Terrestrial Planets & Earth's Moon Atmospheres of the Terrestrial Planets	The Giant Planets Tidal Forces Planetary Moons and Rings Dwarf Planets and Small Solar System Bodies The Search for Extraterrestrial Life
Midterm 1 (Thursday, Sept. 30)	MIDTERM 2 (Thursday, Oct 28)	MIDTERM 3 (Tuesday, Nov 23)

FINAL EXAM – Wednesday, December 15 – 2:45 – 4:45 PM – CUMULATIVE/COMPREHENSIVE

Tentative Laboratory Exercises (order and titles subject to change):

The Rotating Sky, Basic Coordinates Seasons
Motions of the Sun
Phases of the Moon and Eclipses
Planetary Orbits
Measuring the Mass of Jupiter
Radius and Mass of a Planet
Spectroscopy
Extrasolar (Exo-) Planets
Planetary Surfaces
Planet Video
Saturn's Spectra

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.