

ASTRONOMY 205 THE SOLAR SYSTEM

Fall 2016
Section 1

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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

***GEP Category: Investigation Level/Natural Science**

Meeting rooms/times:

Lecture (A107 SCI): Monday, Wednesday, and Friday 12:00-12:50 p.m.
Lab (B204 SCI): Section 1 – Monday 2:00 p.m. – 4:50 p.m.

Office Hours:

I have scheduled five office hours weekly:
Monday 10:00 – 11:00 p.m. and 1:00 – 2:00 p.m.
Wednesday 9:00 – 10:00 a.m. and 1:00 – 2:00 p.m.
Friday 10:00 – 11:00 p.m.

The purpose of the office hours is to allow students to stop by my office and ask any kind of questions related to Astr205 (lectures, labs, homework, exams, etc.) or Astronomy in general. If your schedule is in conflict with all listed time intervals, I am also available by appointment; you would have to send me an email or call me and we decide accordingly.

Textbook: *21st Century Astronomy 5th Ed. by Kay, Palen & Blumenthal*

Other required materials: *A portable **scientific** calculator (graphing capabilities not needed) and a clicker for in-class exercises (leasing instructions below).*

Course website: <http://www.uwsp.edu/d2l/Pages/default.aspx>

Log on 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; for example, change of due dates for assignments, comments on a homework problem, etc.***

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.

Attendance:

Lecture attendance is **strongly recommended**. It is extremely important to an effective learning process. Although the lecture slides are typically available on the course website, they are not necessarily complete. They are meant only as an outline of a particular subject. Not everything that we talk about in classroom is on the slides and what is on the slides is not always self-explanatory.

All scheduled exams will be “in-class” (no take-home exams) and they are all mandatory.

Laboratory attendance is **mandatory**. The laboratory is an integral part of the Astronomy 205 course. A missed lab will automatically bring a zero contribution to the corresponding lab grade. **Failing the lab component of the class (i.e., scoring below 60%) will automatically result in a failing grade for the ENTIRE Astr205 course.**

In case of potential time conflict between a scheduled exam or a lab and religious observances, the student must bring this to the instructor’s attention within the first three weeks of the semester, according to the policy of the University.

Grading Policies:

You will have the following contribution to your final grade:

Laboratory work 18%

Three midterm exams each 15%

Final exam 20%

Homework 10%

Observing Project 2%

Student Presentations 5%

TOTAL: 100%

Your current grades will be posted periodically (updated typically every week) on the class website. 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 18% toward your final grade. You will be asked to work in groups. Each group will turn in a single lab report, hopefully the product of a constructive interaction between the members of the group. In order 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 D2L 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.

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 greater 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!

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.*

Homework: I will post a homework assignment on the course website approx. 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.

Observing projects: You will have **one observatory visit** during the Fall semester. The observing project will be worth 2% of your final grade. Details are provided on the last page of the Syllabus.

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 lab period scheduled in the semester (see the schedule on a later page). 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 contribution to the final grade is 5% (2% and 3%, respectively for the two distinct presentations).

Bonus questions using clickers: Questions will be asked periodically and you will answer using clickers (see below). All bonus questions will account for a maximum of 3%. All answers will be rewarded, the incorrect ones getting partial credit. Bonus points come on top of all other contributions. In other words, bonus questions can only boost, not lower your grade by any means.

This class uses “Clickers” to do interactive polling. You are kindly required to lease a clicker for \$8 for the semester. This semester lease fee will be automatically added to your UWSP student bill.

You will need your UWSP Student ID to lease a clicker.

Clickers are available through:

- **UWSP's Help Desk, located in the basement of the Library, Room 027.**
For hours: <http://www.uwsp.edu/infotech/Pages/HelpDesk/default.aspx>

Important: Your clicker may be used in any class that requires clickers for the semester.

Returning clickers: Return your clicker before the end of finals. Students with unreturned clickers will be billed a late fee and/or may be billed the replacement cost of the clicker. You will receive email reminders toward the end of the semester reminding you of this return.

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.

Disability Services:

Students with special needs should contact the Disability and Assistive Technology Center as soon as possible (<http://www.uwsp.edu/disability/Pages/default.aspx>) in order to request suitable accommodation.

Academic misconduct: Students are expected to maintain the highest standards of academic integrity. Common examples of misconduct: 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 harsh disciplinary consequences of misconduct I would strongly advise that if you need some clarification during an exam or while working on homework, you should ask the instructor/proctor for help. More information is available at <http://www.uwsp.edu/dos/Documents/AcademicIntegrityBrochure.pdf>

In case of emergency: <http://www.uwsp.edu/rmgt/Pages/em/procedures/default.aspx>

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, head phones, etc. and should also refrain from gossiping/chatting while the professor is lecturing and other students are listening and taking notes.

Tentative Lecture & Assignments Schedule

Week	Lecture topics	Textbook Chs.	HW
Sep 6 – 9 (1)	Why Learn Astronomy? OBSERVING PROJECT EXPLAINED	1	No HW...yet!
Sep 12 – 16 (2)	Patterns in the Sky	2	HW 1 begins Thursday Sep15
Sep 19 – 23 (3)	Motions of Astronomical Bodies Gravity and Orbits	3, 4	HW 1 due/HW 2 begins Thursday Sep 22
Sep 26 – 30 (4)	Light	5	HW 2 due/ HW 3 begins Thursday Sep 29
Oct 3 – 7 (5)	MIDTERM 1 (Wednesday, Oct. 5)		HW 3 due/ HW 4 begins Thursday Oct 6
	The Tools of the Astronomer	6	
Oct 10 – 14 (6)	The Tools of the Astronomer	6	HW 4 due/ HW 5 begins Thursday Oct 13
Oct 17 – 21 (7)	Birth and Evolution of Planetary Systems The Search for Exoplanets	7	HW 5 due/ HW 6 begins Thursday Oct 20
Oct 24 – 28 (8)	MIDTERM 2 (Wednesday, Oct 26)		HW 6 due/ HW 7 begins Thursday Oct 27
	The Terrestrial Planets and Earth's Moon	8	
Oct 31 – Nov 4 (9)	Atmospheres of the Terrestrial Planets	9	HW 7 due/ HW 8 begins Thursday Nov 3
Nov 7 – 11 (10)	The Giant Planets	10	HW 8 due/ HW 9 begins Thursday Nov 10
Nov 14 – 18 (11)	Tidal Forces	4, 11	HW 9 due/ HW 10 begins Thursday Nov 17
Nov 21 – 23 (12)	MIDTERM 3 (Monday, Nov 21)		No HW due
	Planetary Moons and Rings	11	
Nov 23 – 27	Student Vacation		
Nov 28 – Dec 2 (13)	Planetary Moons and Rings	11	HW 10 due/ HW 11 begins Thursday Dec1
Dec 5 – 9 (14)	Dwarf Planets and Small Solar System Bodies		
Dec 12 – 16 (15)	The Search for Extraterrestrial Life Review for final OBSERVING PROJECT DUE	12	HW 11 due/ HW 12 begins Thursday Dec 8
Dec 20	FINAL EXAM Thursday, December 20th 14:45- 12:45	24	HW 12 due Thursday Dec 15

Tentative Laboratory Schedule

Week	Lab Exercise
Sep 6-9 (1)	No Lab
Sep 12-16 (2)	<i>Planetarium Visit.</i> Intro to Units and Scientific Notation Basic Coordinates and Seasons
Sep 19-23 (3)	<i>Planetarium Visit.</i> The Rotating Sky
Sep 26-30 (4)	<i>Planetarium Visit.</i> Motions of the Sun
Oct 3-7 (5)	Phases of the Moon
Oct 10-14 (6)	Orbit of Mercury; The Rotation of Mercury
Oct 17-21 (7)	Mass of Jupiter
Oct 24-28 (8)	Radius and Mass of a Planet
Oct 31-Nov 4 (9)	Spectroscopy
Nov 7-11 (10)	Extrasolar (Exo-) Planets
Nov 14-18 (11)	Planetary Surfaces
Nov 21-23 (12)	Planet Video
Nov 28-Dec 2 (13)	Saturn's Spectra
Dec 5-9 (14)	Jupiter's Moon and the Speed of Light
Dec 12-15 (15)	STUDENT PRESENTATIONS

Astr 205 ONLINE HOMEWORK INSTRUCTIONS

Here are a few general instructions about the homework. Please review these, but also read the instructions for the individual homework assignments on-line (whenever the case).

1. Homework assignments can be found at <http://www.uwsp.edu/d2l/Pages/default.aspx> and going to the QUIZZES section. The homework assignments have a specific due date.
2. The homework will be due at 10 P.M. on the date listed/announced. Time and due date are shown on the online listing of the homework. **No late homework will be accepted.**
3. Although you can do the homework multiple times for practice, **only the first attempt on the homework will be recorded and input into the gradebook.** Please make sure that it is your first attempt on the homework that you spend most time on.
4. Keep in mind that when you log into homework, you do not have to finish it during that session. As long as you just close down your browser or back out of that page without hitting the "Submit Quiz" button, you can always go back at another day or time to finish the homework. This allows you to look at the homework, and then come and ask me questions if needed prior to submitting the homework assignment. However, do not forget to hit "Submit" before the due date/time. Just saving the answers does not return a grade.
5. Please feel free to come and ask questions about the homework problems. I am happy to meet with you during office hours, before or after lab, etc. if you have questions prior to submitting your homework.
6. Do not put off your homework until the last minute. There are times when computers do not work, servers go down, etc. Plan ahead and start your homework early so that computer problems do not keep you from turning in your homework.

OBSERVING PROJECT

You will be required to visit the observatory on campus during the semester.

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 14.**

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 absolutely 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 Tuesday or Wednesday during the semester.

Location: 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.

You can also benefit from the Planetarium shows (the schedule is available at http://www.uwsp.edu/physastr/plan_obs/Pages/Public-Programs.aspx)