

2015

Astronomy 102 Stars, Galaxies, The Universe Spring 2015

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Astronomy 102

Stars, Galaxies, The Universe

2015 Spring

Instructor: Erik Johnson

Email: ejohnson@parkland.edu

Phone: 217-353-2096

Office: L212

Observing hotline: 217-373-3782 ext. 6407#

Observing texts: 815-683-6111

Student contact hours: to be determined, please take the survey!

Course websites: cobra.parkland.edu (assignments, announcements, quizzes, email)

natsci.parkland.edu/ast/102 (backup in case Cobra isn't working)

bcs.whfreeman.com/deu5e/ (book companion site; contains animations, flashcards, practice quizzes)

Textbook: *Discovering the Essential Universe* by Neil Comins, Sixth Edition (Fifth Edition is also acceptable)

The textbook is available for purchase or rental in the bookstore, and the ebook is available for a 180-day rental at the bookstore or at ebooks.bfwpub.com/deu5e.php

Clickers: We will use iClickers every day, and 10% of your overall grade will be based on using them. They may be used for several courses at Parkland and at other institutions. You may use the iClicker GO app as well.

Lab packet: We've printed all the lab procedures and you can buy them at the bookstore. They are the cheapest way to print the procedures. Check the lab schedule and bring the appropriate procedure for each lab.

Software: You will frequently use the free Stellarium planetarium software during this course. You must complete the tutorial by the end of the first lab. Stellarium is available at stellarium.org.

Class room, days, and time: L146; Mon, Wed, Fri; 11:00-11:50 (001) or 1:00-1:50 (002)

Lab room, day, and time: L146; Thu; 10:00-11:50 (001) or 1:00-2:50 (002)

Final exam: May 11 (Mon); 11:00-1:00 (001) or May 12 (Tue); 11:00-1:00 (002)

Disabilities: If you believe you have a disability for which you may need an academic accommodation (e.g. an alternate testing environment, use of assistive technology or other classroom assistance), please contact: Cathy Robinson, Room U260, 217-353-2082, crobinson@parkland.edu.

Courtesy: Do not bring food or drinks to the planetarium, and don't turn on any lights when the dome is dark. Please set all cell phones to silent mode or off while you are in class. If you are concerned about possible emergencies, consider having people contact Public Safety (217-351-2369) on your behalf.

Census date rosters and midterm: At the end of the second week of class, I am required to assess your attendance. If you have not attended to that point, you will be dropped with no refund of tuition and fees. After this census date, you should not plan on an instructor withdrawal if you want to withdraw from the course. You are ultimately responsible for your own withdrawal by the withdrawal date. Non-attendance after the census date will result in a failing grade if you don't withdraw yourself.

Veterans: I welcome student veterans of military service to join Student Veterans at Parkland (SVAP), a student group that meets Wednesdays at 3:00 PM in U299. For further information about veterans' issues, please contact Kristina Taylor, Financial Aid Advisor/Veterans Certifying Official, 217-351-2228 or ktaylor@parkland.edu or Lori Williams, Professor of English/Student Veterans at Parkland Faculty Advisor, 217-373-3792 or lwilliams@parkland.edu.

Addenda: Please access Cobra to view the college-wide policies, which contain invaluable information to help you succeed at Parkland. Go to cobra.parkland.edu/shared/shared%20content%20files/syllabus_addendum.html.

Study Groups: You are encouraged to work with other students on assignments, but all submitted answers must be in your own words, and each student must submit his/her own assignment.

Email: Email is probably the quickest way to contact your instructors. I will often email you through your Cobra account, but you can forward those emails to another account of your choice. All assignments, labs, etc. must be submitted into the specific submissions dropbox for each assignment on Cobra in order to get credit for the assignment.

Grading: 900-1000 points	A	Pre- and Post-Assessment and Syllabus Quiz:	15	points
800-899 points	B	Quizzes (40 points each, seven):	280	points
700-799 points	C	Clicker questions participation:	100	points
600-699 points	D	Lab Activities (20 points each, 13 of 14):	260	points
0-599 points	F	Sky Drills (five points each, two):	10	points
or < 60% (< 156 points) on labs		Sky Quizzes (20 points each, two):	40	points
		Observing session and report:	80	points
		Course Project:	90	points
		Final Exam:	125	points
		Total:	1000	points

Pre- and post-course assessments: You must complete a thirty-question, multiple-choice quiz on Cobra within the first couple days of class. It is ungraded, and you will receive five points upon completion of the assignment. You will also have a post-course assessment available with similar grading guidelines.

Syllabus quiz: To ensure you have read through the syllabus, you must also pass the syllabus quiz to access certain portions of the course. You may take the quiz multiple times in the first week to ensure you know the material and earn all five points.

Quizzes and final exam: There will be seven quizzes throughout the semester and will be taken on Cobra. You are given two chances to take each of the seven unit quizzes. Your total grade will be the average of the two quizzes, but you may choose to take the quiz once. You must take each quiz before the deadline, or your grade will be a zero. The quizzes cover the recent class material, while the final exam is cumulative. The date for the final exam is on the first page.

Participation: Participation will be worth 100 points and is based on punctual attendance and using the iClicker. Your iClicker activity will be scored based on answering questions, not answering them correctly. If a student is late more than twice, it will be marked as an absence. If a student falls asleep or is repeatedly texting, they are not mentally present and may be counted as absent. *Three or more unexcused absences will result in a 20 point deduction.*

Laboratory activities: Lab activities occur only one day a week, and can't be made up. However, the lowest score of your labs will be dropped. Completing all of the labs is worth 10 extra credit points. The Lab Procedures have more information and will be covered in your first lab.

Sky drills and sky quizzes: You will be quizzed on constellations, asterisms, and other sky objects in the planetarium. A list of the objects you will need to know is given on the website. A drill session will be given during class to prepare you for each Sky Quiz. Attendance at each drill is worth five points. Dates for these drills and quizzes are given in the schedule and on the Sky Quizzes page. Optional extra or make-up practices will be held and are also listed on the Sky Quizzes page.

Constellation Project: A research project will be completed during the semester. The project is worth 90 points. The project involves studying the stars contained within a certain constellation. It will include analysis of the data you collect, a final written report, and a poster. Details of the project can be found on the website.

Observing session: Stellarium is a wonderful tool, but nothing can compare to the real night sky. You will receive 60 points for simply attending the observation, *but you will not receive any points until you submit a typed report about the session.* The report is worth 20 points, should contain at least 800 words, and must be turned in within one week of the observing session. The report should include a description of the observing conditions, a summary of what you did during the session, a description of each object observed, and a definition of each type of object observed (i.e. if you observe a planetary nebula, write a definition of a planetary nebula).

The observing session takes place at the CUAS Observatory, about 15 minutes' drive from Parkland. You will be required to sign up for the session you wish to attend. Dates and times for these observations will be provided in class and on Cobra. These are scheduled between the last quarter and new moon phases. See the Observing Schedule page for more information. All observing sessions are "weather permitting." Contact the hotline or me via text before coming to the session. Here are the driving directions: goo.gl/maps/9Sifd

Extra credit: There is a 70 point limit on extra credit earned. Several opportunities are listed below and on the website.

Extra credit opportunities this semester:

Saturday Engineering for Everyone lecture every other Saturday at 10:15 AM, check the schedule for astronomy topics

World of Science lecture first Friday of the month at 7:00 PM, check the schedule for astronomy topics

Staerkel Planetarium shows Fridays and Saturdays at 8:00 PM all semester

Prairie Skies shows at Staerkel Planetarium Fridays at 7:00 PM all semester

Family Skywatch at CUAS Observatory on Saturdays around the first quarter Moon at 19:30

Feel free to ask me about other potentially eligible events.

Tentative Schedule:

Week	Sections	Topics	Special Notes	Lab (*laptops)
1/12	1-1 – 1-5; 1-14	The Night Sky	Planetarium (F)	Stellarium Tutorial*
1/19	1-1 – 1-5; 2-1	Motion of Stars; Scientific Method		Stars of the Seasons*
1/26	3-1 – 3-11	Light; Telescopes	no class (M); Quiz 1	Scientific Method*
2/2	3-12 – 3-18	Atoms; Spectra	Project Introduction (M); Planetarium (F)	Telescopes
2/9	9-1 – 9-10	The Sun	Quiz 2; Project part 1 due (W); Sky Drill #1 (F)	Spectra
2/16	10-1 – 10-3	Magnitude and Distance	Quiz 3; Sky Quiz #1 (F)	Solar Observing*
2/23	10-4 – 10-12	Stellar Spectra; Luminosity; HR Diagram	Project part 2 due (W); Sky Drill #2 (F)	no lab
3/2	11-1 – 11-8	Nebulae: Stellar Birthplaces	<i>Midterm (F)</i> ; Sky Quiz #2 (F)	Stellar Parallax and Proper Motion*
3/9	11-9 – 11-15	Stellar Lifespans and Deaths	Quiz 4	Properties of Stars
3/16	12-1 – 12-10	Supernovae		Project Part 3*
3/23			spring break	
3/30	12-11 – 12-18	Black Holes	Quiz 5	Distance to the Pleiades
4/6	13-1 – 13-7	The Milky Way	Project paper due (M)	Ages of Star Clusters
4/13	13-8 – 13-18	Other Galaxies and Redshift	Quiz 6	Monster of the Milky Way*
4/20	13-19 – 13-23	Quasars and Active Galaxies		Distance to Galaxies
4/27	14-1 – 14-15	Big Bang Theory	Project poster due (M); Poster session (W)	Hubble Law*
5/4	15-1 – 15-6	Exobiology	Quiz 7; no class (F)	Life in the Universe*
5/11			Final Exam: 11:00 Monday (001) or 11:00 Tuesday (002)	