

INTRODUCTION TO ASTRONOMY: Course Guide

Instructor Information

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Course Information

PHS-151, 3 s.h.

Centers around a variety of topics including the universe and the earth in space, properties of stars, nuclear energy sources, the solar system, quasars, black holes and life in the universe. Laboratories and observations are incorporated.

Prerequisites: None. Co-requisites: None. *Although there are no formal prerequisites established for registration in this introductory class, mathematics is an integral part of modern science. If you have completed high school-level Algebra I, you can be successful. Students concerned with their math background are strongly advised to discuss this with the instructor.*

Section Information

0120507, 6:00 – 8:50 p.m Thursday, Iowa City Credit Center Room 255.

Required Course Materials

Comins, Neil, *Discovering the Essential Universe*, 4th ed.
Bartusiak, Marcia, *Archives of the Universe*
Ferris, Timothy, *Coming of Age in the Milky Way*
Sky Publishing Corporation laboratory handouts
SC001 Equatorial and North Polar Star Chart

Learning Outcomes, Objectives and/or Competencies

Astronomy is the oldest physical science and based on the supposition that the universe is comprehensible through natural laws. We will study our place in the universe from both a historical and modern perspective. Our studies will include reading of original texts and narratives that place significant astronomical discoveries in a historical context. Recent discoveries and theories will be included as we explore and attempt to identify the underlying unity of the physical laws governing our universe.

We will learn the basic terminology of astronomy and astrophysics, how the scientific method works, and various facts about astronomical objects. The lab portion of the course will illustrate how we make observations and collect data, assess errors and learn to write in the style of scientific journals.

Assessment of Student Learning

EXAMS

There will be two mid-term examinations of one hour's duration each. Exams will cover material and concepts from lecture, homework assignments, laboratory exercises, and out-of-class projects. The final exam will be comprehensive. In addition to the scheduled exams, there will be two in-class quizzes based on readings from the text and previous lecture material.

HOMEWORK

Assignments are based on lecture and lab material and will come from the textbook. Assignments involving the use of computers or evening observations will also be given out and will require work outside of class.

LABS

Indoor Exercises – Several exercises were created in conjunction with *Sky & Telescope* magazine and should be read prior to the scheduled lab period. Additional laboratory exercises may supplement the Sky Publishing handouts. You will be expected to familiarize yourself with the basic concepts before bringing them with you on the night the exercise is to be performed.

Outdoor Exercises – Observing the Moon for an extended period of time will be one required outdoor exercise and additional observations may be conducted depending upon astronomical events that occur during the course of the semester. For example, student may be required to observe planetary alignments, eclipses, satellite apparitions, etc. Because of the ever-changing appearance of the sky, the exact nature of these activities will vary from one semester to the next, but clear instructions and due dates will be established well before any exercise is conducted.

All assignments are assigned to coincide with specific material in the course texts. Students should arrive at class prepared to turn assignments in for grading on the nights they are due. In addition, all other projects will have clearly stated due dates. Indoor labs will typically need to be completed outside of class and due dates will typically be two weeks from the night the exercise is started.

| | |
|------------------------------------|-------------|
| Tests (100 points each) | 200 |
| Homework problems (5 points each) | 200 |
| Quizzes (3) | 60 |
| Lab exercises (20 points each) | 150 |
| Long-Term project | 70 |
| Term paper | 70 |
| Attendance/participation (maximum) | 50 |
| Final Exam (comprehensive) | 200 |
| Total Points | 1000 |

Final letter grades for the course will be assigned *approximately* as shown:

| <u>Points</u> | <u>Score</u> | <u>Grade</u> |
|---------------|--------------|--------------|
| 900 – 1,000 | 90 – 100% | A |
| 850 – 900 | 85 – 90% | A– |
| 800 – 850 | 80 – 85% | B+ |
| 750 – 800 | 75 – 80% | B |
| 700 – 750 | 70 – 75% | B– |
| 650 – 700 | 65 – 70% | C+ |
| 600 – 650 | 60 – 65% | C |
| 550 – 600 | 55 – 60% | C– |
| 500 – 550 | 50 – 55% | D+ |
| 450 – 500 | 45 – 50% | D |
| 400 – 450 | 40 – 45% | D– |
| 0 – 400 | 0 – 40% | F |

Learning Environment Expectations

Class will begin promptly; please be on time. If you are late please enter as quietly as possible. Material will not be repeated for late arrivals. Students are expected to know and comply with the general student conduct policies as printed in the Student Handbook. Intentional disruption of the orderly process and educational atmosphere in the classroom is not acceptable.

Students are encouraged to review and discuss labs and class activities collaboratively, study and work collaboratively on some activities and ask one another questions during group activities and outside of class as they see fit. Collaboration on lab assignments and homework are important, but each student will be individually responsible for all actual assignment content creation. Evidence to the contrary may result in severe grade reductions for the person or persons involved. No collaboration or discussion during tests or quizzes will be permitted. Any cheating will result in dismissal from class.

Telephones and pagers must be turned off or set to vibrate during class and lab time. If your phone or pager rings audibly during class, please exit with as little disruption as possible.

Attendance, Grading and Make-up Policy

Each student is assumed to be a responsible adult aware of his or her best interests, but attendance to regular class meetings is essential for success in this class and is expected. If a regular scheduled class must be missed, it is the student's responsibility to inform the instructor of the absence prior to class or as soon as possible after the missed period in the case of emergencies. It is also the student's responsibility to acquire any material that is missed. **Three unexcused absences is sufficient reason for failure of the class.** Additionally, diligent study and completion of all assigned work will be critical to receiving a satisfactory grade. The instructor will be noting attendance and participation and will base a maximum of 5% of a student's final grade on these factors.

In order that each student be aware of his or her standing in the class, grades and a grade distribution will be prepared after each major assignment, lab, or exam. To facilitate communication between the instructor and all students, each student should set up and use an email account.

The instructor reserves the right to alter or amend these policies on an individual basis due to extenuating circumstances.

In fairness to those who complete assignments conscientiously, late work will not be accepted without the prior approval of the instructor and only for extenuating circumstances. Vacations or missing class for non-emergency reasons do not merit special consideration for making up missed work.

Plagiarism Policy

According to Webster, to plagiarize is "to steal or pass off the ideas or words of another as one's own...to use created productions without crediting the source...to commit literary theft...to present as new and original an idea or product derived from an existing source."

Kirkwood Students are responsible for authenticating any assignment submitted to an instructor. If asked, you must be able to produce proof that the assignment you submit is actually your own work. Therefore, we recommend that you engage in a verifiable working process on assignments. Keep copies of all drafts of your work, make photocopies of research materials, write summaries of research materials, hang onto Writing Center receipts, keep logs or journals of your work on

assignments and papers, learn to save drafts or versions of assignments under individual file names on computer or diskette, etc.

The inability to authenticate your work, should an instructor request it, is a sufficient ground for failing the assignment.

In addition to requiring a student to authenticate his/her work, Kirkwood Community College instructors may employ various other means of ascertaining authenticity—such as engaging in Internet searches, creating quizzes based on student work, requiring students to explain their work and/or process orally, etc.

Drop Date

Students dropping a class during the first two weeks of a term may receive a full or partial tuition refund. The details of the refund schedule are available from Enrollment Services in 216 Kirkwood Hall.

The last date to drop a class this term is **Thursday, April 15**. An add/drop form may be obtained from any academic department office or from Enrollment Services. You must obtain the signature of the instructor or the academic dean of the department to drop a course. The form must be returned to Enrollment Services by the deadline. Students who drop a course will receive a “W” grade for the class. A grade of “W” has no effect on the student’s GPA.

Students who quit attending a class, but who do not drop, will receive either an “F” or and “FW” depending on the student’s last date of attendance. Both of these grades have a negative impact on the student’s GPA.

Students may also opt for a total withdrawal from all of their classes. A complete withdrawal requires the signature of a counselor. A grade of “W” will be assigned for all courses.

Final Exam Information

During the academic year, the regular class schedule is cancelled and replaced by the Final Exam Schedule. During the summer, the final exam will be on the last class period.

The final exam for this class is scheduled for **December 13** at 6 p.m. Taking the final exam at a time other than the assigned time requires prior approval.

Americans with Disabilities Act

Students with disabilities who need accommodations to achieve course objectives should file an accommodation application with Learning Services, Linn Hall 133 as soon as possible.

School Cancellations

When Kirkwood classes are cancelled or delayed due to inclement weather, all classes at all locations are cancelled. The announcements will indicate whether the cancellations apply to day or evening classes. The following broadcasters will be notified:

| | | | | | | | |
|---------|------|---------|------|----------|------|------|------|
| AM 600 | WMT | FM 88.3 | KCCK | FM 102.9 | KZIA | TV 2 | KGAN |
| AM 800 | KXIC | FM 91.7 | KSUI | FM 104.5 | KDAT | TV 7 | KWWL |
| AM 1450 | KMRY | FM 94.1 | KRNA | FM 105.7 | KOKZ | TV 9 | KCRG |
| AM 1550 | KCJJ | FM 98.1 | KHAK | FM 107.9 | KFMW | | |

Courses offered in area high schools will be cancelled when the school district in which the courses are being offered is closed. If the school district is closed for the day, the classes to be offered during the day and evening hours in that school district will be cancelled.

Other Information

The following items can be purchased with little additional expense and are necessary. The labs cannot be done without these items. Additionally, you are permitted to use a calculator on the exams, so the extra expense may be well worth the investment.

- Scientific calculator (it should cost no more than \$12.00)
- Metric ruler (a clear one is best for measuring photographs)
- Pencils

Other Resources

| | | |
|---|--|----------|
| Student Success website | www.kirkwood.edu/studentsuccess | |
| Student Development & Counseling Services | I.C. Learning Center | 887-3947 |
| Learning Services | | |
| Advising | I.C. Learning Center | 887-3620 |
| Testing Center | I.C. Learning Center | 887-3642 |
| Tutor Program | I.C. Learning Center | 887-3633 |
| Services to students with disabilities | I.C. Learning Center | 887-3622 |
| Student Support Services | I.C. Learning Center | 887-3658 |
| Computer Lab | I.C. Learning Center | 887-3627 |
| Library | I.C. Learning Center | 887-3613 |
| Kirkwood Scholarships | 307 Mansfield Court | 398-5442 |
| Student Life | I.C. Learning Center | 398-5685 |

Significant Dates

| Date | Unit | Activity |
|-------------|------------------------|---|
| January 14 | Historical Perspective | |
| January 21 | | Comins Set 1 due |
| January 28 | | Comins Set 2 due |
| February 11 | | Exam 1 <i>Emission of Light</i> activity |
| February 18 | Stars | <i>Variable Stars in M15</i> lab |
| March 4 | | Draft term paper due <i>The Crab Nebula</i> lab |
| March 18 | | Spring Break—No Class |
| March 25 | | Comins Set 3 due <i>How Far is the Galactic Center?</i> lab |
| April 1 | | Exam 2 |
| April 8 | A Universe of Galaxies | Term Paper due <i>Hubble's Law</i> lab |
| April 15 | The Solar System | |
| April 22 | | Comins Set 4 due |
| April 29 | | Long-term project due <i>Earth's Orbital Velocity</i> lab |
| May 6 | | Comins Set 5 due |
| May 13 | | Final Exam (Comprehensive) |

The dates of topics covered may change.