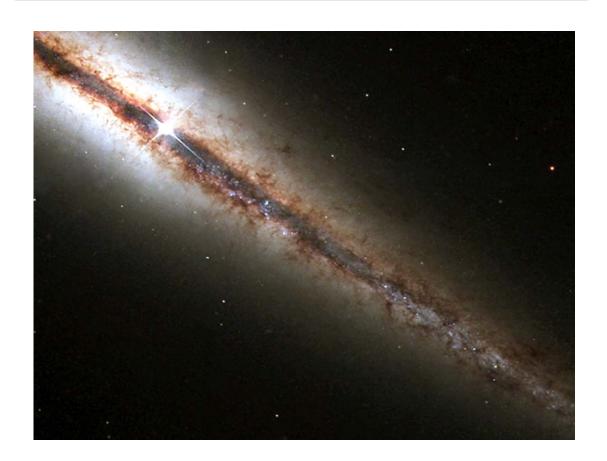# Physics 471H

Astrophysics
1 Credit

Instructor – Dr. Mark Conde

Overview

Description

This course is a quick survey of topics of interest in astrophysics. The brief 5-week period will limit both the scope and depth of the material covered. Topics to be discussed include:

- Astrophysical Tools
- Stellar Astrophysics
- The Milky Way Galaxy
- The Nature of Galaxies
- Large Scale Structure of the Cosmos

Course goals and student learning outcomes

Upon completion of this course students will:

- Be familiar with a range of topics from astrophysics
- Be able to solve simple quantitative problems relating to these phenomena.

My goal as an instructor is to provide every student with maximum possible opportunity for success. This means that I try to be as flexible as possible with the course requirements, to avoid creating needless hurdles. Nevertheless, some penalties for missed or late work are necessary; my policies in this regard are outlined below.

Instructor information

Instructor:	Dr. Mark Conde
	Email: mgconde@alaska.edu
	Office locations: Reichardt room 110 and Elvey room 706F.
	Office Phone: 474-7741
	Office hours: 10 am to 12 AM Mon Wed, Fri in Reichardt 110, or immediately after class on these days. (You can also see me in Elvey room 706F, by arrangement.)
Office Manager:	Ellen Craig: Email: eacraig@alaska.edu
	Office: Reichardt room 102.)
	Phone: 474-7339

Approximate schedule

Week	Dates	Notes	Lectures	HW Assigned	Hw Due
1	Nov 07 - Nov 11		1-3		
2	Nov 14 - Nov 18		4-6	1	
3	Nov 21 - Nov 25	Thanksgiving week	7-8	2	1
4	Nov 28 - Dec 02		9-11	3	2
5	Dec 05 - Dec 09		12-14		3
6	Dec 12 - Dec 16	Final Exam (Wed)			
7	Dec 19 – Dec 23	Grades posted			

Course components and instructional methods

Instructional materials

Material for this course will be prepared electronically and will be available *over the web via the "Blackboard"[1] system* at http://classes.uaf.edu. Material to be posted this way includes:

- Course syllabus (this document)
- Lecture notes (see comments below)
- Homework problem sets
- Supplementary handouts
- Online student grades

Note that I will not be distributing homework or exam solutions to the web.

Lectures

I will be presenting lectures using a computer rather than the blackboard. I intend to post printable versions of the electronic lecture notes online ahead of time, <u>provided</u> this does not appear to be adversely affecting lecture attendance.

Lectures will be held on Monday, Wednesday, and Friday from 3:30 PM to 4:30 PM in room 300 of the Reichardt building.

Homework

There will be three homework sets for this course. Homework will be assigned during the Monday lecture and will be due at the <u>start</u> of the following Monday's lecture. Hand your homework to me at that lecture. You are encouraged to work with others, but you are prohibited from simply copying other's work. Homework will count heavily toward your final grade, as well as provide me with feedback regarding your understanding of the material.

Problems assigned can often be solved in several ways, with each solution involving a number of steps. So please be aware that even if you submit a correct solution to a problem, I may not recognize it as correct if it's poorly presented. While I will accept almost any work that you turn in, it is unlikely that I'll award many points for a homework or exam solution unless it:

- Is neatly laid out
- Is largely free from crossing out and over-writing
- Is accompanied by descriptions in words of what you are doing at each step

Exams

- There will be one exam. It will be held during the allocated final exam time slot of Wednesday December 14, beginning at 3:15 PM. The University allocates 2 hours for this exam, which is needlessly long for a 1-credit course. The exam will

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[1] All students should have access to Blackboard. Please let me know if you have difficulties with this.

be written so that you should be able to complete it in one hour. However, I will stay for up to two hours if any students feel they can use the extra time usefully.

Complex formulae and physical constants will be provided for exam problems that require them. No textbooks or printed matter will be allowed in exams, but you may bring in any amount of your own original (not photocopied) handwritten notes.

Course requirements

Prerequisites

PHYS F220, PHYS F301, or permission of instructor.

Textbooks

I will be posting fairly comprehensive lecture notes online. I expect some students may find these notes alone to be adequate for this course. I will be drawing on numerous text books and published articles, but the following is recommended for detailed reading:

- "An Introduction to Modern Astrophysics", by Bradley W. Carroll and Dale A. Ostlie, Second Edition Addison Wesley 2007.

Calculators

Calculators will be permitted during exams. There will be no need for anything elaborate; an easy-to-use scientific calculator with trigonometric, exponential, and logarithmic functions is all that you will need. Remember that it is much more important to present the correct formulae and reasoning for solving a problem than it is to arrive at the correct numerical value. Please, explain your reasoning when presenting solutions to homework and exam problems. I will award partial points for correct reasoning, if presented, even if the final answer is incorrect or incomplete.

Course policies

Grading

The course grade will consist of the following components

- One one-hour final exam: 40%
- Three homework sets: 60% (20% per set)

I will post all grades online, using the UAF's "Blackboard" system (http://classes.uaf.edu). All registered students have access to this system for checking their grades. Please do check that we have posted all your grades correctly, and let me know if you think there is an error. Also, please retain all work that we return after grading, in case an error does appear. Returned graded work is proof of your scores.

Final grades will be returned as letter grades with plus/minus modifiers. These will be derived from your overall percentage grade. The approximate conversions for each letter

grade will be as follows. A: ☐90%; B: 75% to 90%; C: 60% to 75%; D: 50% to 60%; F: <50%. Plus/minus modifiers will subdivide each main grade into three equally spaced sub levels..

Attendance

UAF policy states that "you are expected to adhere to the class attendance policies set by your instructors." In general, I expect at least 90% attendance from all students. If attendance becomes a concern I may need to respond, for example by introducing unannounced "pop quizzes" to allow me to reward those who do attend regularly. Extra credit will be given for points scored on any such quizzes. Initially, I am not planning to record attendance at lectures. However, I will certainly notice repeated absences in this small class and may begin keeping attendance records if truancy does become a problem. Documented absence from more than half of the lectures may result in a failing grade.

Class participation

There is no requirement for you to participate actively in class by asking questions or joining discussions, and there is no grade component based on this. Nevertheless, you are of course free to ask questions at any time during the lectures. Because we have a large amount of material to cover, I may defer answering lengthy or numerous questions until after class.

Exam and homework make-up policy

In the case of documented illness or emergency, a make-up exam may be given, at the discretion of the instructor. An unexcused absence for an exam will lead to 0 points earned on that exam.

Problem sets will generally not be accepted after the due date, without evidence of illness or genuine emergency. Students having documented clashes with other UAF commitments may pre-arrange alternate homework submission deadlines with me. All decisions regarding late homework or alternate deadlines will be at the discretion of the instructor.

Student conduct and academic honesty

It is the responsibility of each student to be informed about the policies for student conduct and safety at the University of Alaska. You are encouraged to read these policies at http://www.uaf.edu/usa/student-resources/conduct/#condu. It should go without saying that students are expected to do their own original work for all assignments. Copying from other students or indeed from any source that is not your own work constitutes plagiarism. Failure to comply with UAF policies may be considered academic misconduct and may result in a failing grade (either for individual portions of work, or for the entire course, depending on severity.) Serious cases will be referred to university authorities for possible further disciplinary action.

Support services

Complaints and concerns

You are always welcome to discuss your concerns with me. However, if you have a concern that you feel cannot be resolved by discussion with me, you may wish to contact the Physics Department chair, Dr. Wackerbauer. The University also has an Academic Advising Center on the 5th floor of the Gruening building, open Monday to Friday, 8 am to 5 pm and contactable via phone at 907-474-6396. The advising center can help with all student matters, from study tips to help with understanding the University's formal mechanisms for academic appeals. (See also http://www.uaf.edu/advising/)

Student Health and Counseling Center

The University provides health and counseling services through its Student Health and Counseling Center, which is located at 612 N. Chandalar Drive, on the 2nd floor of the Whitaker Building (the same building as Fire and Police, across from the bus turn around.) Their web site is at http://www.uaf.edu/chc/. The center will see students on an appointment basis. The number to call for an appointment is 474-7043. It is best to do so at 8:00 AM in the morning, because they are scheduled daily on a first come first serve basis.

Disabled students

Disability services are provided free of charge, and are available to any student who qualifies as a person with a disability. Student seeking special accommodations for a disability must first discuss their needs with Disability Services. Call 474-5655 to schedule an appointment.

UAF Disability Services is located in the Whitaker Building, room 208. Extensive support is available, as described at http://www.uaf.edu/disability/