

**COURSE SYLLABUS**  
**ASTR 5465 - Galaxies**  
**Spring 2016**

**Instructor Information:**

**Instructor:** Dr. Michael Pierce

**Phone:** 766-6102, 761-2045

**Office:** Physical Science 206

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**Office Hours:** Anytime by Appoint.

**Course Information:**

Lecture: Tues, Thurs. 8:35 pm – 9:50 pm, PS 227

**Prerequisites:**

A graduate standing in astrophysics or permission of the instructor

**Course Description:**

Presents material necessary for the study of the Milky Way, galaxies, active galaxies, and the large-scale structure of the universe. Topics include stellar populations, kinematics and dynamics in the Milky Way and other galaxies, galaxy classification and properties, and active nuclei and quasars.

**Objectives/Outcomes/Standards:**

Upon completion of this course the student should have developed a sufficient understanding of galaxies and the large-scale structure of the universe to undertake research in this field of astrophysics.

**Textbook and Readings:**

Galaxies in the Universe, Sparke & Gallagher

Galactic Astronomy, Binney & Merrifield (not required but useful)

Galactic Dynamics, Binney & Tremaine (not required but useful)

Supplemental Readings, from the literature assigned on a weekly basis

**Course Requirements/Assignments:**

**Lecture:**

I plan to lecture about 3 hours per week and let each of you lead a discussion of the assigned readings for about 30 min. each week during an additional session to be arranged around everyone's schedule (this is a 4-hour class).

**Homework and Projects:**

Homework problems will be assigned periodically. I prefer to assign a variety of computational and analytical problems. I will also assign topics to each of you for in-class presentations at the end of the semester. This will involve a 1-hour presentations on a topic selected from a list that I will provide.

**In-Class Discussion of Assigned Readings:**

Each of you will lead a discussion of the assigned readings once a week in class. My goal here is for each student to present and summarize the key issues from the readings.

We'll rotate through this responsibility each week. However, each student is expected to take part in the discussion.

**Exams and Grading:**

I plan to have only a mid-term and final exam in this course. I expect that 33.3% of the grade will come from the exams and 33.3% from the Homework/Projects and 33.3% from the student presentations. I will review grades at mid-term and let each of you know how you are doing in the class so that there are no surprises.

**Attendance/Participation Policy:**

Please see me if you will be missing class. Otherwise, university sponsored absences are cleared through the Office of Student Life.

**Disability Statement:**

If you have a physical, learning, sensory or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with, and provide documentation of your disability to University Disability Support Services (UDSS) in SEO, room 330 Knight Hall.

**Academic Honesty:**

UW Regulation 6-802. The University of Wyoming is built upon a strong foundation of integrity, respect and trust. All members of the university community have a responsibility to be honest and the right to expect honesty from others. Any form of academic dishonesty is unacceptable to our community and will not be tolerated [from the UW General Bulletin]. Teachers and students should report suspected violations of standards of academic honesty to the instructor, department head, or dean. Other University regulations can be found at:

<http://uwadmnweb.uwyo.edu/legal/universityregulations.htm>

**Disclaimer:**

**The instructor may make changes to the syllabus as the course proceeds. If necessary, these changes will be announced in class. Substantive changes made to the syllabus shall be communicated in writing to the students.**

## Tentative Schedule (subject to change)

<b>Week</b>	<b>Subject</b>	<b>Chapters</b>
Week 1 (Jan. 26, 28)	Overview, Stars & Surveys	1
Week 2 (Feb. 2, 4)	Mapping the Milky Way	2
Week 3 (Feb. 9, 11)	Orbits of Stars	3
Week 4 (Feb. 16, 18)	Local Group and Galaxy Classification	4
Week 5 (Feb. 23, 25)	Spiral Galaxy Photometry & Kinematics	5
Week 6 (Mar. 1, 3)	Elliptical Galaxy Photometry & Kinematics	6
Week 7 (Mar. 8, 10)	Stellar Populations & Star Formation <b>(Mid-term Exam: Thursday, March 10)</b>	--
Week 8 (Mar. 15, 17)	<b>No Class: Spring Break</b>	
Week 9 (Mar. 22, 24)	Dynamics-I (Spiral Structure, Bars)	--
Week 10 (Mar. 29, 31)	Dynamics-II (Spiral Structure, Bars cont.)	
Week 11 (Apr. 5, 7)	Active Galactic Nuclei	9
Week 12 (Apr. 12, 14)	Galaxy groups and Clusters	7
Week 13 (Apr. 19, 21)	Large-scale Distribution of Galaxies	8
Week 14 (Apr. 26, 28)	Formation of Galaxies and Structure	8
Week 15 (May 3, 5)	Modern Topics	--
Week 16 (May 10, May 12)	<b>Final: Student Presentations</b>	