University of Manitoba
Faculty of Science
Department of Physics & Astronomy

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Note: This syllabus follows the University of Manitoba template.

COURSE DETAILS

Course Title & Number:	Phenomenology of Galaxies
Number of Credit Hours:	3
Class Times & Days of Week:	3:30 – 5:30 pm Thursday
Location for classes:	Allen Building 326
Pre-Requisites:	Offered to upper year undergraduates. Honours or Majors level 3rd year math and physics requirements. Prerequisite: PHYS 3180 (016.318) (C).

Instructor Contact Information

Instructor(s) Name:	Prof. Jayanne English
Preferred Form of Address:	Jayanne
Office Location:	Allen 514
Office Hours or Availability:	By appointment.
Office Phone No.	204-474-7105
Email:	jayanne.English@UManitoba.Ca All communications must use university email accounts according to Communicating with Students document.
Contact:	Students are welcome to contact me via email, office phone number and dropping by my office.

General Course Information

Course Description

This course provides the foundation in observational astronomy that is required for doing research involving the material between stars, or galaxies as a whole. Our current understanding of astronomical phenomena (including empirical laws, the characteristics of stars and the interstellar medium) are outlined in the context of the structure of galaxies. Text material will be supplemented with the current research results in the professional literature.

Course Goals

The course is intended to provide strong preparation for studies at the graduate school level. Also it can enhance the activities of science students outside of astronomy who describe themselves as serious amateur astronomers.
The format reflects the teaching goals which include giving the students the opportunity:
-- to be independent and responsible for their learning,
-- to learn time management skills,
-- to learn teaching and presentation skills

Intended Learning Outcomes

The goal is to move beyond statements of knowledge to comprehension, application, analysis, synthesis, and evaluation. Critical thinking skills will be developed.

Expectations: I Expect You To

I expect you to review the material in the topic list before coming to class and to contribute to the discussion in class. I plan to be in class for 5 minutes prior to and after the class time. I expect you to settle in your seat before class starts and to leave only when class is completed.

I expect the Princeton Guidelines for study to be followed; that is, at least 3 hours of study per each credit hour of the course.

I will treat you with respect and would appreciate the same courtesy in return. See Respectful Work and Learning Environment Policy.

Academic Integrity:
Policies are attached in sections at the end of this document. Note the following.

(i) Group projects are subject to the rules of academic dishonesty;
(ii) Group members must ensure that a group project adheres to the principles of academic integrity.
(iii) Students may form informal study groups for discussing individual assignments;
(iv) Collaboration on assignments is limited to discussion of strategies and solutions. However the assignment submitted must be an individual student's own work; and
(v) All work is to be completed independently unless otherwise specified.

Textbook, Readings, Materials

- **Course Website**: http://www.physics.umanitoba.ca/~english/teachwebpages/2017winter4320
  - Assigned articles and updates will be placed on this website.
- Textbook: "Galaxies in the Universe", Sparke, Linda and Gallagher, John S. III. Cambridge University Press, Second Edition, 2007
- Supplemental Textbooks and websites:
  - "Galactic Astronomy. Binney, James, and Merrifield, Michael." Princeton University Press, 1998. "Galactic Astronomy. Mihalas, Dimitri and Binney, James." Princeton University Press, 1981.
  - "Astrophysics: Decoding the Cosmos. Judith Irwin." Wiley, 2007
  - Level 5 at NASA/Ipac Extragalactic Database (NED)

Expectations: You Can Expect Me To

Learning requires active participation! A large part of my teaching practice includes the use of questions in class. I expect students to respond but I do not expect perfection. Also interactions with fellow students are known to facilitate learning. Therefore I plan to introduce think-pair-share discussions, which you are expected to participate in.

Class Schedule

The schedule will be organized by the students in the course. They will use the **Topics List** as a guide, and the fact that there will be at least 5 assignments in the first 3/4 of the term, and note when they have commitments such as mid-term tests. The devised schedule is subject to change at the discretion of the instructor and/or based on the learning needs of the students but such changes are subject to Section 2.8 of the – ROASS- Procedure.

Course Evaluation Methods

A variety of methods are used to give all types of learners an opportunity to excel. PHYS 7660 students will do a research data-driven project rather than literature-based project and are expected to achieve a grade of B+ or higher. For reports and assignments there is a l**oss of 10% per day beyond deadline date and time.**

Due Date:	Assessment Tool	Value of Final Grade
Each class	Participation and contribution	5%
Arranged by the students according to topics list.	Informal Seminars. See description of topics on website.	10%
Specified on assignment.	Assignments.	35%
No later than April 7th.	Literature or Research-based Project	50%

Class Format

Material in the topics list will be delivered by the students in an informal seminar format. Following the style of research proposal review committees, there will be a “1st reader” presenting the material and a supporting “2nd reader”. (Preparation should take about 1 day as per the “Princeton Guidelines”.)

Evaluation of the literature-based project is expected to be:

Written Report for literature-based project: The report is brief but includes the background relevant to understanding the paper, includes a review of a professional paper, and an evaluation of the paper. It may be useful to consult the outline for extended learning portfolios for this report, which is available at the course website.	30%
Project Colloquium. A document outlining the evaluation will be available online (presentation criteria). Colloquium occurs at an Astronomy Journal Club which reviews the project. Expected to be 30 mins long, including the question period.	15%
Follow-up report on the questions, from the colloquium audience, a hardcopy of the presentation, and final reflections on the material.	5%

Evaluation of the data-based project is expected to be:

Analysis of Professional Data: The project will be developed in conjunction with the instructor. Data will be provided or computationally generated by the student. Software may be developed as necessary If the work contributes to a professional paper, the student will be acknowledged.	15%
Written Report for data-based project: The report is brief but includes the background relevant to understanding the project, a summary of the project, may include a review of a professional paper, and an evaluation of the project. It may be useful to consult the outline for extended learning portfolios for this report, which is available at the course website.	20%
Project Colloquium. A document outlining the evaluation will be available online (presentation criteria). Colloquium occurs at an Astronomy Journal Club which reviews the project. Expected to be 30 mins long, including the question period.	10%
Follow-up report on the questions, from the colloquium audience, a hardcopy of the presentation, and final reflections on the material.	5%

Grading

In this indication of grading, adjustment of the boundaries of the final letter grades may occur. It will be based on the distribution in the histogram of marks. However no student's grade will be reduced.

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	90-100	4.25-4.5	4.5
A	83-89	3.75-4.24	4.0
B+	78-82	3.25-3.74	3.5
B	72-77	2.75-3.24	3.0
C+	66-71	2.25-2.74	2.5
C	60-65	2.0-2.24	2.0
D	50-59	Less than 2.0	1.0
F	Less than 50		0

Report and Assignment Style

Assignments and reports will use **Learning Portfolio format**. See course website for description. **Reports must be typed.** Assignments must be neatly written in ink, or typed, with diagrams in pencil. Citations in reports will use the standard in professional astronomy publications.

Assignment Grading Times

The number of graded assignments returned by the voluntary withdrawal date will depend on the schedule developed by the students.

Using Copyrighted Material

Please respect copyright. We will use copyrighted content in this course. University guidelines state that copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the *Copyright Act* applies or written permission has been confirmed. For more information, see the University's Copyright Office website at http://umanitoba.ca/copyright/ or contact um_copyright@umanitoba.ca.

Recording Class Lectures

Jayanne English and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission from Jayanne English. Course materials (both paper and digital) are for the participant's private study and research.

Course Technology

It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. The student can use all technology in classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Disability Services. Student should not participate in personal direct electronic messaging / posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g. Facebook) online and offline "gaming" during scheduled class time. If student is on call (emergency) the student should switch his/her cell phone on vibrate mode and leave the classroom before using it. (©S Kondrashov. Used with permission)

Class Communication

The course website must be consulted regularly. Communications with Prof. English must be made to her university email addresses or office phones.

The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit: http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf

Please note that all communication between the professor and you as a student must comply with the electronic communication with student policy (http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html). You are required to obtain and use your U of M email account for all communication between yourself and the university.

Information About Voluntary Withdrawal

Note that Voluntary Withdrawal has a number of impacts. The student must request permission to retake the course and there are limits to the number of repeated attempts. Access for VW students to the course may be limited if the course is full. A Voluntary Withdrawal shall be recorded on the Student History and Official Transcript issued by the University.

Final grades for courses in which Students ceased attending, without an official VW, will be included on the Student History and Official Transcript issued by the University, and will be factored into the Student's Grade Point Average.

Policies

POLICY ON CLASSES AND PRESENTATIONS

Attendance at **all** sessions is expected and attendance at classmates' final presentations is mandatory. Special circumstances might be considered.

PLAGIARISM AND CHEATING

(University of Manitoba Undergraduate Calendar, p. 27)

To plagiarize is to take ideas or words of another person and pass them off as one's own. In short, it is stealing something intangible rather than an object. Obviously it is not necessary to state the source of well known or easily verifiable facts, but students are expected to acknowledge the sources of ideas and expressions they use in their written work, whether quoted directly or paraphrased. This applies to diagrams, statistical tables and the like, as well as to written material, and materials or information from Internet sources. To provide adequate documentation is not only an indication of academic honesty but also a courtesy which enables the reader to consult these sources with ease. Failure to do so constitutes plagiarism. It will also be considered plagiarism and/or cheating if a student submits a term paper written in whole or in part by someone other than him/herself, or copies the answer or answers of another student in any test, examination, or take-home assignment.

Plagiarism or any other form of cheating in examinations or term tests (e.g., crib notes) is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

FACULTY OF SCIENCE STATEMENT ON ACADEMIC DISHONESTY

The Faculty of Science and The University of Manitoba regard acts of academic dishonesty in quizzes, tests, examinations, laboratory reports or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence.

Acts of academic dishonesty include, but are not limited to bringing unauthorized materials into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation.

Note: cell phones, pagers, PDAs, MP3 units or electronic translators are explicitly listed as unauthorized materials, and must not be present during tests or examinations.

Penalties that may apply, as provided for under the University of Manitoba's Student Discipline ByLaw, range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. The Student Discipline ByLaw may be accessed at:
http://umanitoba.ca/admin/governance/media/Student_Discipline_Bylaw_-_2009_01_01.pdf
Suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty are available on the Faculty of Science webpage:
http://umanitoba.ca/faculties/science/resources/Acad_Dishon_TABLE_RevCSS_AdminC_Jul2012_WEB.pdf
All Faculty members (and their teaching assistants) have been instructed to be vigilant and report all incidents of academic dishonesty to the Head of the Department.

Students Accessibility Services

Student Accessibility Services
If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.
Student Accessibility Services http://umanitoba.ca/student/saa/accessibility/
520 University Centre
204 474 7423
Student_accessibility@umanitoba.ca

SCHEDULE A

A **Schedule A** document is posted on the course website. This is a Policy and Resource Document with information on various University and Unit policies regarding academic integrity, student discipline, and respectful learning environment, for example, and on academic and student supports that are available, including a statement regarding mental health with referral information to the Student Counselling Centre and University Health Services.