Physics 3150, Fall 2016, Course Information:

Fall 2016 SLOT 3  
Monday, Wednesday, and Friday, 10:00-10:50, room C2045

INSTRUCTOR: Dr. M. R. Morrow  
Room: C3012  
Phone: 864-4361  
Email: mmorrow@mun.ca

OFFICE HOURS: The instructor is available at most times outside of class. Students are encouraged to contact the instructor by e-mail to confirm availability for a meeting.


CALENDAR ENTRY: 3150 Astrophysics I covers macroscopic and microscopic physics related to stellar structure, energy production, and evolution. This includes stellar observables, gravity and other forces, the Virial Theorem, light and matter in stars, stellar spectra and classification, Hertzsprung-Russel diagrams and properties of main sequence dwarf stars, radiation in the stellar atmosphere, structural relationships and stellar models, energy sources and energy transport in stars, star formation and stellar evolution, nucleosynthesis, variable stars, Chandrasekhar’s limit, and degenerate remnants.

PR: PHYS 2053, 2750 (or 2056), and 2820

EVALUATION:  
Assignments 15%  
Poster 15%  
Mid-term Test 20%  
Final Exam 50%  

There is no supplementary examination in this course.

MID-TERM TEST: Wednesday October 19, 2016.

There will be no deferred midterm tests. Students prevented from writing a mid-term test by illness or bereavement or other acceptable cause, duly authenticated in writing, may apply, in writing and with supporting documents, for an alternate evaluation which will normally be a reassignment of the test weight to the final examination. Normally, this application must be made within one week of the original date of the examination or deadline to the course instructor.
POSTER:
Scientific posters are an important way to communicate research results at symposia and conferences. Students will be required to prepare and submit a poster, in electronic format (PowerPoint or pdf), describing a significant contribution made to stellar astrophysics or the understanding of stellar evolution made by a selected astrophysicist or research program (observatory, telescope, modelling initiative, etc.). Posters, in electronic format, will be due on Friday November 18, 2016. It is intended that each student will report on the contribution from a different astrophysicist or research program. The first to propose a particular name will have priority for that astrophysicist or program. A list of potential subjects is provided but others can be proposed. Additional details about the poster, including examples and available templates, are posted separately.

ASSIGNMENTS:
There will be 6 assignments over the course of the semester. Normally, each will be due 1 week after it is assigned. It is intended that assignments will complement/extend lecture material by giving students an opportunity to apply concepts covered in class to specific calculations or analyses. Assignments may also involve working with stellar datasets to learn about the properties of specific objects or the capabilities of specific instrumentation.

- Assignment 1 due Mon. Sept. 19, 2016
- Assignment 2 due Mon. Sept. 26, 2016
- Assignment 6 due Wed. Nov. 9, 2016

P3150, Fall 2016, Course Outline (a more detailed outline is posted on the course D2L site):

1. Introduction, Objectives, Course Organization, Outline, Orientation
2. Some Nomenclature
3. Kinds of observations that can provide insight into stellar properties
4. Gravity
5. Other forces
6. The Virial Theorem
7. Light and Matter
8. Stellar Spectra and the Classification of Stars
9. Radiation in the stellar atmosphere
10. Star Interiors – parameters, properties, and relationships
11. Star Interiors – Energy sources, energy transport, models
12. Star Formation
13. Stellar Evolution
14. Neutrinos
15. Variable Stars
16. Fate of Massive Stars
17. Degenerate Remnants
**ACADEMIC INTEGRITY:**

Students are expected to conduct themselves in all aspects of the course at the highest level of academic integrity. Any student found to commit academic misconduct will be dealt with according to University practices as outlined at http://www.mun.ca/regoff/calendar/sectionNo=REGS-0748.

Students are also encouraged to consult Memorial University’s Code of Student Conduct at http://www.mun.ca/student/conduct.

**INCLUSION AND EQUITY:**

Students who require physical or academic accommodations are encouraged to speak privately to the instructor so that appropriate arrangements can be made to ensure your full participation in the course. All conversations will remain confidential.

The university experience is enriched by the diversity of viewpoints, values, and backgrounds that each class participant possesses. In order for this course to encourage as much insightful and comprehensive discussion among class participants as possible, there is an expectation that dialogue will be collegial and respectful across disciplinary, cultural, and personal boundaries.

**STUDENT ASSISTANCE:**

Student Affairs and Services offers help and support in a variety of areas, both academic and personal. More information can be found at www.mun.ca/student