

# PHYS 1513 COIN3: Astronomy 1 - Observational Methods and Solar System

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## Syllabus - Astronomy 1

### Course Description

This course is the first part of a general introduction to astronomy. It emphasizes the night sky and objects in our solar system. The instructor discusses space science, telescopes, cameras and other instruments used in the study of astronomy.

### Instructor

Dr. Svetlana Barkanova is a professor at Grenfell Campus of Memorial University of Newfoundland, home to one of the largest campus-based telescopes in Canada and a new BSc program in physics, which explores everything from the smallest particles to the most distant stars and galaxies. An internationally known researcher, she is on a quest to discover and understand the basic laws that govern the Universe. What is the nature of Dark Matter, a huge hidden mass, in our Universe? Can quantum mechanics and gravity, two different theories, be made to work together? How are elements, like the oxygen we breath, formed? She is also an award-winning teacher and a popular public speaker who is passionate about science promotion and showcasing the beauty of the night sky.

01:09

#### **Contact Information:**

Svetlana Barkanova  
Professor of Physics PhD

E-mail: [sbarkanova@grenfell.mun.ca](mailto:sbarkanova@grenfell.mun.ca)

## Course Overview

A general introduction to astronomy, the course emphasizes the night sky and objects in our solar system. The instructor discusses space science, telescopes, cameras and other instruments used in the study of astronomy.

The major goals of the course are to expand horizons, apply the scientific method, teach critical and logical thinking, and practice problem solving skills. Students are expected to develop the ability to search for, verify, interpret, and communicate scientific information. Special attention will be paid to overcoming "math phobia" and developing long-term interest in science.

## Course Materials

### Textbook:

Chaisson, Eric and Steve McMillan, *Astronomy Today*, 9th Edition, Pearson (2018) [Instructions for purchasing and registering here](#)

**ISBN-10:** 0134450272

**ISBN-13:** 978-0134450278

***When purchasing access to the text and online Mastering platform you can choose either a 6 month or 24 month access period***

### Web-references (required):

"Introduction to Mastering Astronomy" on [www.pearson.com/mastering](http://www.pearson.com/mastering).

Course name: Open Acadia Physics 1513

Course ID: barkanova66161

***Content from the required course textbook, *Astronomy Today*, 9th edition, by Eric Chaisson and Steve McMillan (2018), is the copyright of Pearson. Use of this material, including modifications made by the instructor, is in compliance with fair dealing and/or educational exceptions in the Copyright Act.***

### Recommended software:

We will use stellarium.org, a free planetarium software that shows exactly what you see when you look up at the stars.

## Evaluation

|                          |     |
|--------------------------|-----|
| 15 Assignments (3% each) | 45% |
| 1 Course Paper           | 5%  |
| 1 Exam                   | 50% |

The assignments and the course paper are completed via Mastering Astronomy website, at [www.pearson.com/mastering](http://www.pearson.com/mastering).

Course name: Open Acadia Phys 1513

Course ID: barkanova48490

The last assignment should be received at least 4 weeks prior to the date you wish to write the exam. This will allow adequate processing time for the request, and for setting the exam.

## Exam

The 3-hour exam will consist of 100 multiple-choice questions.

## Course Schedule

You have 6 months to complete this course. You may set your own schedule, but if you intend to complete the course in less than 3 months, you should let me know so that we can arrange a schedule.

### Quick Overview: Recommended Schedule

|         |   |  |
|---------|---|--|
| Week 1  | Chapter 1: Charting the Heavens               | - Complete "Introduction to Mastering Astronomy"<br>- Ch 1 HW on Mastering Astronomy                 |
| Week 2  | Chapter 2: The Copernican Revolution          | - Complete Ch 2 HW on Mastering Astronomy  |
| Week 3  | Chapter 3: Radiation                          | - Complete Ch 3 HW on Mastering Astronomy<br>- Continue researching references for your course paper |
| Week 4  | Chapter 4: Spectroscopy                       | - Complete Ch 4 HW on Mastering Astronomy  |
| Week 5  | Chapter 5: Telescopes                         | - Complete Ch 5 HW on Mastering Astronomy  |
| Week 6  | Chapter 6: The Solar System                   | - Complete Ch 6 HW on Mastering Astronomy<br>- Review Chapters 1 to 5                                |
| Week 7  | Chapter 7: Earth                              | - Complete Ch 7 HW on Mastering Astronomy  |
| Week 8  | Chapter 8: The Moon and Mercury               | - Complete Ch 8 HW on Mastering Astronomy  |
| Week 9  | Chapter 9: Venus                              | - Complete Ch 9 HW on Mastering Astronomy  |
| Week 10 | Chapter 10: Mars                              | - Complete Ch 10 HW on Mastering Astronomy   |
| Week 11 | Chapter 11: Jupiter                           | - Complete Ch 11 HW on Mastering Astronomy   |
| Week 12 | Chapter 12: Saturn                            | - Complete Ch 12 HW on Mastering Astronomy   |
| Week 13 | Chapter 13: Uranus, Neptune and Pluto         | - Complete Ch 13 HW on Mastering Astronomy   |
| Week 14 | Chapter 14: Solar System Debris               | - Complete Ch 14 HW on Mastering Astronomy   |
| Week 15 | Chapter 15: The Formation of Planetary System | - Complete Ch 15 HW on Mastering Astronomy<br>- Complete your Course Paper on Mastering Astronomy    |

## Student Handbook

You are responsible for becoming familiar with the contents of the Student Handbook. It contains important information about scheduling examinations (if applicable), applying for extensions, withdrawing from your course, ordering books, and computer and library services available to you. If you have questions about the policies outlined in the handbook (<https://courseware.acadiau.ca/openacadia/studenthandbook.html>), contact:

Open Acadia  
21 University Avenue (Rhodes Hall)  
Wolfville, NS B4P 2R6  
Phone: 1-800-565-6568  
Fax: 1-902-585-1068  
Email: [openacadia@acadiau.ca](mailto:openacadia@acadiau.ca)

## Academic Integrity

Academic integrity demands responsible use of the work of other scholars. It is compromised by academic dishonesty such as cheating and plagiarism. A student who is uncertain whether or not a course of action might constitute cheating or plagiarism should seek in advance the advice of the instructor involved.

- Cheating is copying or the use of unauthorized aids or the intentional falsification or invention of information in any academic exercise
- Plagiarism is the act of presenting the ideas or words of another as one's own. Students are required to acknowledge and document the sources of ideas that they use in their written work.
- Self-plagiarism is also a form of plagiarism. It is the presentation of the same work in more than one course without the permission of

the instructors involved.

- A student who knowingly helps another to commit an act of academic dishonesty is equally guilty.
- Penalties are levied in relation to the degree of the relevant infraction. They range from requiring the student to re-do the piece of work, through failure on that piece of work, to failure in the course, and to dismissal from the university.

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