

Division of Natural Science

<http://natsci.info.yorku.ca/>

Course Outline

SC/NATS 1740 6.00 B: Astronomy  
Fall-Winter (Y) 2018-19  
Online Section

Course Instructor(s) and Contact Information

- Course Director: Professor *Tatiana O. Paulin*
- Contact: [ns1740to@yorku.ca](mailto:ns1740to@yorku.ca)
  - Any emails sent from your non-York account (such as Hotmail, Gmail, Yahoo, etc.) may be randomly filtered out as 'junk mail', resulting in lost communication. Always use **your York email** for all course communication.
  - Expected time for response to emails will be within 2 days (48 hours).
- Office: Bethune College, room 217B

Expanded Course Description

This course embarks on an astronomical journey into the final frontier! A broad range of topics will be discussed including: the night sky, fundamental properties of light and matter, telescopes, planets and other objects in our solar system and in other solar systems, our Sun and other stars, black holes, galaxies, dark matter, dark energy, the origin and evolution of the universe, and the possibility of life beyond earth. No prior background in science is assumed. Mathematics will be limited.

Course Learning Outcomes

Upon successful completion of this course students should be able to:

- relate the different scales of sizes and distances of objects, along with timelines of events, in the whole-universe perspective
- explain the causes of locally-observed astronomical phenomena such as patterns of the night and day sky, changing seasons on Earth, and the appearance of lunar phases and eclipses
- summarize the history of astronomy as the oldest recorded science on Earth, and relate it to the development of the modern scientific method in general
- apply the scientific method through direct systematic observation of the moon, followed by formulation of causes to explain the observed patterns
- discuss how advancement in understanding of the nature of light and matter allows for insights into all physical objects and phenomena we observe in the universe with the aid of telescopes
- describe and categorize the different types of objects existing in our own solar system, including terrestrial and jovian planets, asteroids, comets, and dwarf planets
- compare and contrast the evolution of stars similar to, and different from, our sun
- describe and categorize different types of galaxies, and their evolution
- evaluate the proposed cosmological models for the formation of the universe, dark matter, dark energy, and the ultimate fate of the universe
- summarize the history of life on Earth, and speculate on possibilities of extra-terrestrial life existing in our solar system and beyond
- critically analyze scientific information presented in popular science news sources compared to the scholarly peer-reviewed journals

## Evaluation

Course Component	Due-date		Weight
Homework Assignments	<i>Weekly</i>		10
Research Project	<i>Deadline:</i>	<i>For student number ending in this <b>last</b> digit:</i>	12
	November 4	0, or 1, or 2, or 3, or 4	
	February 17	5, or 6, or 7, or 8, or 9	
Moon Project	<i>Deadline:</i>	<i>For student number ending in this <b>last</b> digit:</i>	18
	November 7	5, or 6, or 7, or 8, or 9	
	February 4	0, or 1, or 2, or 3, or 4	
Midterm Exam	<i>December 6-21; <b>on campus</b></i> <i>(To be scheduled by the Registrar's Office)</i>		30
Final Exam	<i>April 5-20; <b>on campus</b></i> <i>(To be scheduled by the Registrar's Office)</i>		30
	TOTAL		100%

### **Homework Assignments**

Multiple-choice/ranking/sorting/vocabulary type homework assignments in the Mastering Astronomy (M.A.) online software (accompanying the textbook) will be assigned for each lesson. Each individual assignment is worth 0.5%, so that 20 assignments need to be completed to achieve the full 10% grade for this course component. However, there will be 22 assignments available in total during the entire course, so that 2 lowest assignment grades will be dropped at the end of the course. If missed, these assignments are not 'makeup-able'.

### **Research Project**

The main objective of this research project is to compare and contrast scientific information presented in popular media sources versus scientific research literature, on various topics in astronomy.

### **Moon Project**

This project involves structured naked-eye observations of the Moon, along with a written report addressing key questions based on these observations.

### **Exams**

Two on-campus, invigilated, paper-based exams will be held at the end of each term, during the specified exam period. The exams will be non-cumulative (i.e. based on lessons during one term only). The format of the exam will be all multiple choice questions.

### **Off-campus Exams**

Both term exams will be held in an invigilated environment on campus. Students who reside further than approximately 3 hours' commute from York University and cannot travel to the campus may attempt to

set up an off-campus exam at an approved post-secondary institution closer to where they will be at the time of the exam. All instructions for setting up an off-campus exam are available from the eLearning website here: <http://elearning.laps.yorku.ca/off-site-examinations/> . Note that the request for an off-campus exam must be submitted to the eLearning office at least 10 business days prior to the scheduled exam date, and any extra fees for this service must be paid by the student.

### Course Materials

***The Cosmic Perspective***, by Jeffrey O. Bennett, Megan Donahue, Nicholas Schneider, Mark Voit. **8th edition**, with a valid Mastering Astronomy access code. Published by Pearson, 2017. (Note: online access to Mastering Astronomy is required for all students, for graded weekly assignments.)

There are two options for obtaining the required course material, from the campus bookstore.

**Option 1: all online access (approximate cost: \$75)**

Includes ebook and Mastering Astronomy access, all online access.

ISBN-10: 132344856X ISBN-13: 9781323448564

OR:

**Option 2: online access with printed textbook (approximate cost: \$90)**

Unbound, loose-leaf, ready for 3-hole binder, printed textbook plus all electronic access to ebook and Mastering Astronomy access code.

ISBN-10: 0134160304 ISBN-13: 9780134160306

### Laboratory/Tutorial

This course does not have a laboratory or tutorial component.

### Course Content and Format

- Content: for each lesson, students will have access to:
  - *Moodle*: instructor's summary lesson notes, and summary slides accompanying the textbook
  - *Mastering Astronomy*: textbook readings, and corresponding online homework assignments
- Projects: two major term projects will be submitted by students in Moodle
- Exams: two term exams to be held during the official exam periods, on campus

### Math Content

No prior background in science is assumed. Mathematics will be limited. (Ontario Grade 10 Math)

## Course Policies

### Questions and Concerns should be directed to:

- Public type of questions (such as the nature of projects, assignments, 'how do I...'; etc.) should be posted in the appropriate public discussion forum in Moodle.
- Private type of questions (such as individual grades, personal issues, missed course work, etc) should be sent by email to the course director (*ns1740to@yorku.ca*).
- Responses can be expected within 2 days (48 hours).

### Late Submissions and Late Penalties

- Late submissions of the two major term projects (in Moodle) will be deducted at 5% per day, up to 1 week from original deadline.
- Weekly homework assignments in M.A. cannot be submitted late.

### Policy for Missed Course Work and Exams

- Any consideration for alternate arrangements for major missed work after-the-fact \*may\* be given ONLY if this work was missed due to a VALID REASON. The actual alternate arrangement itself will be decided upon by the course director, as deemed appropriate. To qualify for any consideration of alternate arrangements for completing the missed course work, you must do BOTH of the following steps:
  - 1. Immediately NOTIFY THE COURSE DIRECTOR (by email at *ns1740to@yorku.ca*) of missing the course component, due to a valid reason, within 2 days (48 hours) of this course component being due.
  - 2. Provide VALID DOCUMENTATION to support your valid reason for having missed this course component. For example: attending physician statement (not just a 'doctor's note') in case of illness (form can be downloaded here: <http://myacademicrecord.students.yorku.ca/pdf/attending-physicians-statement.pdf>), police report (car accident), death certificate (death of family member), etc. This documentation has to be provided in a timely fashion (within 1 week of the missed deadline), by email to the course director at *ns1740to@yorku.ca*.

### Reappraisal Requests

Any questions on grades assigned to course work must first be submitted by email to the course director at *ns1740to@yorku.ca*, ensuring those questions have not already been answered or commented on by the evaluating TA, in the evaluation form returned back to the student in Moodle. Reappraisal request will be completed within one week's time, after receipt.

## Copyright and Intellectual Property

All course materials in the course are the intellectual property of the instructor (lesson notes) and the textbook publisher (textbook summary slides, readings), and thus may not be posted to other websites or students not registered in this class.

## University Policies

### Important Sessional Dates

Includes sessional start and end dates, drop deadlines, and withdrawal dates.

See the Office of the Registrar website at <http://www.registrar.yorku.ca/enrol/dates/>

### Academic Honesty and Integrity

Academic honesty requires that persons do not falsely claim credit for the ideas, writing or other intellectual property of others, either by presenting such works as their own or through impersonation. Similarly, academic honesty requires that persons do not cheat (attempt to gain an improper advantage in an academic evaluation), nor attempt or actually alter, suppress, falsify or fabricate any research data or results, official academic record, application or document. Finally, academic honesty requires that persons do not aid or abet others to commit an offence of academic dishonesty, including intentional acts to disrupt academic activities.

Suspected breaches of academic honesty will be investigated and charges shall be laid if reasonable

and probable grounds exist.

#### Academic Honesty and electronic devices during assessments (e.g. exams)

- Internet capable and personal storage devices of all kinds must be turned off, including vibrate. These and any other unauthorized material must be placed under the student's chair and should not be accessed at any point during the exam. Failure to comply with directive may be considered a break of academic honesty.
- See <http://registrar.yorku.ca/exams/tipsheet>

Please familiarize yourself with the full Senate Policy on Academic Honesty, found at <http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>

Please also familiarize yourself with the SPARK Academic Honesty tutorial found at <https://spark.library.yorku.ca/academic-integrity-what-is-academic-integrity/>

#### **Academic Accommodation for Students with Disabilities**

York University shall make reasonable and appropriate accommodations and adaptations in order to promote the ability of students with disabilities to fulfill the academic requirements of their programs.

The nature and extent of accommodations shall be consistent with and supportive of the integrity of the curriculum and of the academic standards of programs or courses.

Please familiarize yourself with the full Senate Policy on Academic Accommodations for Students with Disabilities, found at <http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/>

**Note: Students should submit accommodation letters from Counseling and Disability Services (CDS) to the course instructor within the first two weeks of the course or as soon as issued.**

Counseling and Disability Services - <http://cds.info.yorku.ca/>

York Accessibility Hub - <http://accessibilityhub.info.yorku.ca/>

**Note: A student registered with CDS, and choosing to write with Alternate Exams, is responsible for making the appropriate writing arrangements within the timeframes outlined by Alternate Exams.**

Alternate Exams - <http://altexams.students.yorku.ca/>

#### **Religious Observance Accommodation**

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents.

<https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/15/wo/kmHGekTpzKLX6XYKBXYc8M/0.3.4.62.0>

**Note: Students who will have an academic conflict as a result of a religious observance, at any point in the term, should make the instructor aware of such at least three weeks prior to the conflict.**

For conflicts occurring during an official examination period, please complete the Examination Accommodation Form available at [http://www.registrar.yorku.ca/pdf/exam\\_accommodation.pdf](http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf) and submit to your instructor at least three weeks prior to the final exam.

#### **Student Conduct in Academic Situations**

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect and to refrain from actions disruptive to such a relationship. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to

decide, in the first instance, whether such an atmosphere is present in the class. A statement of the policy and procedures regarding disruptive and/or harassing behaviour by students in academic situations is available on the website of the University Secretariat (<http://secretariat.info.yorku.ca/>).

#### Division of Natural Science Resources

##### **NATS-AID**

Free peer tutoring for students enrolled in Natural Science Courses.

See <http://natsci.info.yorku.ca/nats-aid/>

##### **M-AID in NATS (Math Aid)**

Free math help for students enrolled in Natural Science Courses (TA tutors)

See <http://natsci.info.yorku.ca/m-aid-in-nats/>

#### Other Resources

##### **Learning Commons**

The Learning Commons brings together key supports for your learning: writing, research, learning skills and career services. <http://www.library.yorku.ca/cms/learning-commons/>

##### **goSAFE**

goSAFE is a complimentary service provided to the York Community. At the Keele campus, goSAFE has two routes: North Route & South Route which will safely transport community members by vehicle from one specified hub to another on campus. goSAFE operates seven days a week, all year round, including University closures (with the exception at Glendon during the Christmas holiday closure).

Call the goSAFE office at 416-736-5454 or extension 55454 during hours of operation. Please give your name, location and destination. <http://www.yorku.ca/goSAFE/>

##### **Mental Health and Wellness at York University**

Outlines a variety of resources available to support mental health and wellness

<http://mhw.info.yorku.ca/resources/resources-at-york/students/>

##### **Good2Talk**

Post-Secondary Student 24 hour Helpline

<http://www.good2talk.ca/> 1-866-925-5454