

Division of Natural Science

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

Course Outline

NATS1745B History of Astronomy
FW2017-18
Format: Online

Course Instructor(s) and Contact Information

Robin Metcalfe
305 Norman Bethune College
416-736-2100 x30302

Course mailbox: ns1745b@yorku.ca

Course website: <https://moodle.yorku.ca>

Office hours: Thursdays 3-5pm

Course schedule: At the **Course Schedule and Important Dates** link in the **General Information** section of the course Moodle site or at <http://www.yorku.ca/rfinger/ns1745/fw17/ns1745b-fw17-sched.pdf>

Email Policies & Etiquette

- Emails to the course mailbox should always be sent from a yorku.ca account. Emails from other accounts (hotmail, gmail, yahoo, etc.) may be marked as spam and may never reach the course mailbox.
- When composing emails to the course mailbox, always be sure to include your full name and student ID. Failure to include this information may result in a delayed reply.
- All emails are read and responded to by a Teaching Assistant (TA). If you need to contact the Course Instructor about a confidential matter, enter PERSONAL for the subject line. Your email will be forwarded to the Course Instructor's email address. If you prefer, you can wait until you receive a reply from the Course Instructor before providing any details.
- The course mailbox is monitored by the Course Instructor to ensure the accuracy of information as well as to ensure that respectful and courteous communication is being maintained between students and TAs.
- Emails will typically be responded to by the next business day. Emails marked as PERSONAL may occasionally take an additional business day, depending on when the email is forwarded to the Course Instructor.
- Please refrain from using URGENT in email subject lines. All emails are responded to in the order of when they are received.

NOTE: Before sending an email to the course mailbox, please take a moment to refer to the Course Outline, as the Course Outline contains the answers to most questions that students have. By checking the Course Outline first, you're likely to get a faster answer!

Course Description

This course follows the evolution of discoveries and theories about Astronomy from pre-historic times up to the present. We begin by looking at sites like Stonehenge and Newgrange, where we find evidence that the motions of the Sun and stars were understood in prehistoric times. We then look at the astronomical knowledge amassed by ancient civilizations such as the Mayans, Babylonians and Egyptians, followed by the Greek explanations for the cosmos and the beginnings of Astronomy as a science. The first half of the course concludes with the early history of modern Astronomy and covers figures like Copernicus, Brahe, Kepler, Galileo and Newton. The 2nd half of the course covers discoveries about our solar system, the stars, galaxies and the universe from the 19th century up to the present day. This includes the history of our missions to space, recent discoveries about the birth and evolution of the universe, discoveries of new planets beyond our solar system, and theories about black holes, dark matter and dark energy.

No previous background in Astronomy (or any science) is required in order to be successful in this course.

Course Learning Outcomes

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

- Describe and appreciate a broad range of scientific achievements in prehistoric, ancient, medieval, renaissance, and contemporary Astronomy
- Explain and predict the various cycles of the sky
- Utilizes a variety of simple methods for making astronomical measurements
- Understand the basic numerical analyses in the presentation of scientific research (such as graphical representations, statistics, and "order of magnitude" estimates)
- Critically analyze articles on recent astronomical research in popular science journals and evaluate the value of the research

Evaluation

Final grades are calculating according to the weighting scheme below. All due dates and exam dates can be found at the **Course Schedule and Important Dates** link in the **General Information** section of our Moodle site (or at <http://www.yorku.ca/rfinger/ns1745/fw17/ns1745b-fw17-sched.pdf>).

Weighting scheme:

- **10% - Astronomy Exercises (best 5 of 6, 2% each):** Approximately once per month, students will complete learning exercises in which they will explore methods that have been used to make scientific discoveries in Astronomy. The exercises are completed in pen or pencil, then scanned/photographed and uploaded to the course website.
- **20% - Funding Proposals (best 3 of 4, 6.67% each):** Twice each term, students will submit written summaries of recent articles pertaining to astronomical research and will provide an argument for continued funding of the research.

- **35% - Midterm exam:** A 2.5-hour exam will be held during the December exam period at York University's Keele campus. The exam will consist of approximately 100 multiple-choice questions on the online lectures and assigned reading from the Fall term. Study guides will be provided to assist students with preparing for the exam.
- **35% - Final exam:** A 2.5-hour exam will be held during the April exam period at York University's Keele campus. The exam will consist of approximately 100 multiple-choice questions on the online lectures and assigned reading from the Winter term only. Study guides will be provided to assist students with preparing for the exam.

PLEASE NOTE: University regulations require that course evaluation schemes are fixed at the start of the term. As a result, there are no opportunities for extra-credit assignments or for final grades to be "bumped up". This is to insure that all students are evaluated equally and given an equal opportunity to succeed.

Course Materials

Required Reading: Each lesson will include a short reading. The readings will be available free-of-charge from the course Moodle site. The reading material will be covered on the exams.

Laboratory/Tutorial

This course does not have a laboratory or tutorial component.

Course Content and Format

This course is in the online format. All course materials are provided on the course Moodle site.

The Moodle site is divided into a series of lessons. Due dates for each lesson are listed at the **Course Schedule and Important Dates** link in the **General Information section**. Completion of a lesson entails:

- watching a set of lecture videos
- completing the assigned reading
- completing the Astronomy Exercise (if any); and
- completing the study guide questions, from which the exam questions are drawn

On average, you will have 2 weeks to complete each lesson, and you should anticipate spending an average of 7-10 hours of work per week in order to be successful in this course.

NOTE: At the start of each week, the Course Instructor will post a class-wide announcement in the **Course Announcements** forum on the course Moodle site. The weekly posts contain reminders of upcoming due dates and information on when marks will be posted as well as occasional news highlights on new discoveries in Astronomy. The posts may also occasionally contain changes to the class schedule. To ensure that you receive these weekly announcements and that you don't miss out on important information, be sure to view your Moodle profile and confirm that it contains a yorku email address that you check regularly.

Math Content

The math in this course does not exceed a grade 10 level. Mathematical concepts are restricted to simple arithmetic, numerical comparisons, understanding graphs and basic statistical concepts. All math is done in the Astronomy Exercises only, for which students can obtain help from each other, the Course Instructor, or a tutor from NATS-Aid or MATH-Aid (refer to the **Natural Science Resources** section below). There is no math on the exams.

Course Policies

Questions and Concerns

Questions and concerns should be directed to the Course Instructor either during weekly office hours or via email to the course mailbox (ns1745b@yorku.ca), where they will typically be responded to by a TA by the next business day, or forwarded to the Course Instructor if they are of a personal nature. Before sending an email, be sure to read the **Email Policies & Etiquette** section (above) to minimize delays in the reply.

Missed Deadlines

Late Astronomy exercises and funding proposals are penalized 10% per day, including weekends. There are no extensions, but since your lowest Astronomy exercise and lowest funding proposal are dropped, you can miss one of each without penalty.

Off-Campus Exams

Students who reside more than 3 hours travel time from York University's Keele Campus can write an off-site exam at the nearest participating institution. Off-site examination information can be found at <http://elearning.laps.yorku.ca/off-site-examinations/>.

Missed Exam

If an exam is missed due to illness, you must email a clear photo or scan of an APS (Attending Physician's Statement; available at <http://www.registrar.yorku.ca/pdf/attending-physicians-statement.pdf>) to the course mailbox (ns1745b@yorku.ca). The APS must be sent to the course mailbox within 48 hours of the missed exam. A make-up exam will be scheduled within a week of the original exam date. If a student misses the original exam date as well as the make-up exam, the student must petition their home faculty for deferred standing so that the exam can be completed after the course is over. Information & deadlines for this petition can be found at <http://myacademicrecord.students.yorku.ca/deferred-standing>. The missed exam cannot be made up until the petition is granted.

Note: If an exam is missed due to a critical incident other than illness, students must be seen by a critical incident counselor at the Office of Student Conflict Resolution (<http://www.yorku.ca/oscr/criticalincidentmanagement.htm>). The counselor will inform the Course Instructor if a deferred exam is justified. The incident details will be kept confidential between the student and the counselor.

Grade Reappraisals

At the end of the course, students will have the opportunity to request a reassessment of any assignments which they feel were marked in error and are preventing them from achieving the next highest letter grade. Details about this process will be provided in the **Course Announcements** forum at the end of the academic year.

Copyright and Intellectual Property

Most of the images shown in the online lectures are protected by copyright law, which allows educators to share short excerpts of copyright material for educational purposes. However, it is illegal for students to share or distribute copyright materials. Students who violate copyright law are at risk of being sued by the owners of the material. Some examples of illegal distribution include:

- Sharing photographs of slide presentations, either online or in the classroom.
- Copying lecture videos and posting them on a web site
- Posting photographs or screen captures of lecture videos on a web site
- Printing out photographs or screen captures of lecture videos and making the printouts available for distribution

The best way to ensure that you are not in violation of copyright law is to use the course material as it was intended – namely, watch the videos at their existing locations and do not download or copy them. If you come across an image or diagram that you'd like to share with someone outside of the class, you can contact the Course Instructor to obtain a link to the image at its original location.

University Policies

Important Sessional Dates

Sessional start and end dates, drop deadlines, withdrawal dates and holidays are listed at the Office of the Registrar's 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.

During assessments (eg, quizzes, tests or exams), all unauthorized technology and materials must be placed under the student's chair and should not be accessed at any point during the assessment. Failure to comply with this directive may be considered a break of academic honesty.

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 their exams in the Alternate Exam Centre, is responsible for making the appropriate writing arrangements within the timeframes outlined by the Alternate Exam Centre.

Alternate Exam Centre - <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. Information on religious observance accommodations can be found at <https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs>.

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

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. York's policy and procedures regarding disruptive and/or harassing behaviour by students in academic situations can be found at (<http://secretariat-policies.info.yorku.ca/policies/disruptive-andor-harassing-behaviour-in-academic-situations-senate-policy/>).

Student Conduct in Online Forums

When making use of a course's online forums, students are required to maintain courteous and respectful communication. Keep in mind that Moodle is simply an electronic version of a regular classroom. As such, the University's Student Code of Conduct continues to apply (<http://www.yorku.ca/oscr/pdfs/CodeofRightsandResponsibilities.pdf>). Violation of the Student Code of Conduct will result in immediate loss of access to Moodle, and any further applicable consequences in accordance with the Code.

Division of Natural Science Resources

NATS-AID (<http://natsci.info.yorku.ca/nats-aid/>)

Free peer tutoring for students enrolled in Natural Science Courses.

M-AID in NATS (Math Aid) (<http://natsci.info.yorku.ca/m-aid-in-nats/>)

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

Other Resources

Learning Commons (<http://www.library.yorku.ca/cms/learning-commons/>)

The Learning Commons brings together key supports for your learning, including writing, research, learning skills and career services.

goSAFE (<http://www.yorku.ca/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.

Mental Health & Wellness at York University

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

This service provides a variety of resources available to support mental health and wellness

Good2Talk (<http://www.good2talk.ca/>)

24 hour Helpline for post-secondary students

1-866-925-5454