

Division of Natural Science

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

Course Outline

NATS1745A History of Astronomy
SU2018
Format: Online

Professor and Contact Information

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

Course mailbox: ns1745a@yorku.ca

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

Office hours: Posted in the **General Information** section on Moodle

Course schedule: At the **Course Schedule** link in the **General Information** section on Moodle or at <http://www.yorku.ca/rfinger/ns1745/su18/ns1745-su18-sched.pdf>

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
- Utilize 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
- Digest scientific issues in the media with greater confidence and scientific fluency

Evaluation

Final grades are calculating according to the weighting scheme below. All due dates and exam dates can be found at the **Course Schedule** link in the **General Information** section of our Moodle site (or at <http://www.yorku.ca/rfinger/ns1745/su18/ns1745a-su18-sched.pdf>).

Weighting scheme:

- **15% - Astronomy exercises (best 3 of 4 assignments, 5% each):** Four of the lessons include learning exercises in which students will explore methods that are used to make scientific discoveries in Astronomy. The exercises are completed in pen or pencil, then scanned/photographed and uploaded to the course website.
- **42.5% - Midterm exam:** A 2.5-hour exam will be held in the middle of the term at York University's Keele campus. The exam will consist of approximately 100 multiple-choice questions on the lecture material from the 1st half of the term. Study guides will be provided to assist students with preparing for the exam.
- **42.5% - Final exam:** A 2.5-hour exam will be held during the August exam period at York University's Keele campus. The exam will consist of approximately 100 multiple-choice questions on the lecture material from the 2nd half of the 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: Selected lessons may 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, and topics to focus on will be highlighted in the Study Guide for the lesson in which the reading has been assigned.

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** link in the **General Information** section. Completion of a lesson entails:

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

On average, you will have 1 week to complete each lesson. You should anticipate spending an average of 15-20 hours of work per week in order to be successful in this course. Keep in mind that this is a double-speed course (ie, a 6-credit course condensed into 1 term), which means that you should expect to be doing double the amount of work required for a 6-credit course taught in the full fall/winter session.

NOTE: At the start of each week, the professor 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 as well as from the professor. There is no math on the exams.

Course Policies

Communication Policies

- Whenever possible, questions for the professor should be posted in the **FAQ Forum**, which can be accessed from the **Forums** section of the course Moodle site. Posts to this forum will typically be responded to by the next business day. Posting to this forum creates a valuable knowledge base of common questions that all students can benefit from.
- The course mailbox (ns1745a@yorku.ca) should be used for personal questions only. Emails to the course mailbox will typically be responded to within 1-2 business days.
- 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 personal 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.

- Please refrain from using URGENT in the subject lines of forum posts or emails. All posts and emails are responded to in the order that they are received.

NOTE: Before posting to the FAQ Forum or emailing the course mailbox, please take a moment to refer to the Course Outline. 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!

Missed Assignment Deadlines

Late astronomy exercises and funding proposals are penalized 10% per day, including weekends. If a deadline 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 (ns1745a@yorku.ca). The APS must be sent to the course mailbox within 48 hours of the missed deadline. A new deadline will be scheduled based on the dates specified in the APS.

Missed Midterm Exam

If you miss the midterm exam due to illness, the professor must be notified by email no later than 48 hours after the missed exam. The email must contain a clear photo or scan of the University's APS (Attending Physician's Statement; available at <http://www.registrar.yorku.ca/pdf/attending-physicians-statement.pdf>). The APS must be completed by your doctor within 48 hours of the missed exam and must indicate the specific dates during which the incapacitation applies. A make-up exam will be scheduled within a week of the effective period specified on the APS. No other form of doctor's note will be accepted, and if the APS does not meet the above requirements, you will not be allowed to make up the exam.

Note: 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.

Also 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 Community Relations (<http://oscr.students.yorku.ca/critical-incident-management>). The counselor will inform the professor if a deferred exam is justified. The incident details will be kept confidential between the student and the counselor.

Missed Final Exam

The same regulations apply as for a missed midterm exam (above), with the exception that if a student misses the original dates for both the midterm and final exam, or if a student misses the final exam as well as a make-up exam, the student must petition their home faculty for an exam deferral. Information & deadlines for this petition can be found <http://myacademicrecord.students.yorku.ca/deferred-standing>. The missed exam cannot be made up until the petition is granted. Petitions for an exam deferral may not be successful, in which case the student will not be allowed to make up the exam.

Exam Conflicts

If you have an exam conflict due to pre-arranged travel or a mandatory event, the professor must be notified by email at least 10 business days prior to the exam so that a make-up session can be arranged. Your email should be sent to the course mailbox and must include, as an attachment, a clear photo or scan of documented proof of the conflict (eg, travel tickets).

Note: Exam conflicts with other courses are arranged by the Registrar's Office. If you have an official exam conflict, it will appear in red on your personalized exam schedule and you will be notified by the Registrar's Office, via email, of alternate arrangements to resolve the conflict.

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/>. Off-site exams must be arranged with the eLearning Office at least 10 business days prior to the exam.

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 professor 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.

If you require academic accommodations, 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 professor 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, must provide the professor with a completed Religious Accommodation Agreement (<https://secure.students.yorku.ca/pdf/religious-accommodation-agreement-final-examinations.pdf>) at least three weeks prior to the date of the conflict.

Expectations of 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/>.

Expectations of 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://calendars.registrar.yorku.ca/2012-2013/policies/code/index.htm>). 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.

Campus Resources and Services

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