Faculty of Science YORK UNIVERSITÉ UNIVERSITY

Division of Natural Science

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

Course Outline

NATS1745 M, History of Astronomy
Winter, 2019
MR, 14:30 -17:30, SLH F

Course Instructor(s) and Contact Information

Course: SC/NATS 1745 M 6.0 – History of Astronomy
Course Webpage:
Term: W 2019

Course Credit Exclusions: None
Prerequisite / Co-requisite: N/A

Course Instructors

Winter 2019
(Dr.) Alireza Rafiee
Ext. 30321
Chemistry Building, CB 318
nat1745m@yorku.ca
Office Hours: Wednesday, 1:30 – 4:00 pm Or by appointment

Time and Location

Monday	14:30 - 17:30	SLH F
Thursday	14:30 - 17:30	SLH F

Email Policies and Etiquette

- When composing email to the course email, you MUST include the phrase “NATS1745M” in the subject line of the email. Email without this phrase will be filtered as spam and may never reach the course mailbox.
- Your full information; name, last name and student ID, MUST be included in the body of the email. I keep the right to avoid emails without full information composed from a random and unidentified email address.
- Emails will be responded to within the next 48 hours. If you did not receive any response after 48 hours, please check the first two criteria namely, the subject line “NATS1745M” and full name and ID in the body of the email. If you missed any of the two, then follow the email policies and etiquette and send it again.

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!

Expanded Course Description

This course follows the chronological evolution of discoveries and theories about Astronomy from pre-historic times up to the present. We will begin this course by defining what science is and how science processes knowledge. Then we create a fact sheet based on the most recent and reliable theories in Astronomy to have a solid base to compare with. We are now ready to study the pre-historic theories in Astronomy and evaluate them with respect to the true picture of the Universe. We begin by looking at sites like Stonehenge, 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 cosmology, 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 and eventually the possibility of multiverse or parallel universes and the plausible fate of our Universe.

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
- Understand a variety of simple methods for making astronomical measurements
- Appreciate the most recent scientific theories/hypotheses about the birth of the universe

Evaluation

Final grades are calculating according to the weighting scheme below.

Weighting scheme: (Tentative)

- 25% - Group assignments. (best 5 out of 6 [85% rules]; 5% each)
- 18% - Term Projects. (2 projects, 9% each)
- 7% - Participation and iClicker quizzes [85% rules; best 85% is considered]
- 25% - Midterm Exam. (up to 100 multiple choice questions)
- 25% - Final Exam. (up to 100 multiple choice questions)

Course Materials

OPTIONAL TEXTBOOK: Text book is "TBD". The lecture notes presents, an enjoyable and non-scientific way, the history behind the most important and relevant discoveries in Astronomy. The textbook material is to supplement the lecture notes, which present the scientific details of each discovery.

OTHER REQUIREMENTS
Star Chart SC001 Equatorial Region
- (Charts can be downloaded for free from http://www.midnightkite.com/)

Optional Readings (not required):
Online free books on history of Astronomy:

1- A History of Astronomy by Walter William Bryant
   a. https://archive.org/stream/ahistoryastrono00bryagoog#page/n12/mode/2up
2- The History of Astronomy by Giorgio Abetti:
   a. https://archive.org/details/TheHistoryOfAstronomy
3- History of Astronomy by Michael Perryman**:**
   a. http://arxiv.org/pdf/1209.3563v1.pdf
4- Great Astronomers by Robert S. Ball:
   a. http://www.e-booksdirectory.com/details.php?ebook=8587
5- Short History of Astronomy by Arthur Berry:
   a. https://ia600302.us.archive.org/9/items/shorthistoryofas025511mbp/shorthistoryofas025511mbp.pdf
6- Lectures on Astronomy, Astrophysics and Cosmology
   a. https://arxiv.org/pdf/0706.1988v2.pdf

Make your own Astrolabe:
http://cse.ssl.berkeley.edu/AtHomeAstronomy/activity_07.html
or http://www.astrolabes.org/index.htm

Laboratory/Tutorial

This course does not have a laboratory or tutorial component.

Course Content and Format

This course is a lecture course. All course materials are provided on the course Moodle site. You may buy the textbook from York bookstore.

The Moodle site is divided into several sections covering a series of lessons on different epochs. The videos and additional materials added for you to improve your understanding.

Math Content

This course does not rely upon mathematical skills beyond those normally found in the Grade 10 curriculum: simple algebra and geometry.

Course Policies

Assignment Submission:

Students must not only perform academically to the best of their ability but submit their work *on time*. Accordingly, assignments for this course must be received on or before the due date and time specified. Assignments done on-line such as Chapter Completion Assignments will be automatically graded by Moodle and the grade will appear in the gradebook in a timely manner once the assignment or quiz has closed. Assignments that require a written component – individual and group – must be uploaded to the course website in either **PDF or WORD format** while the assignment is "open." Please note that ONLY these two formats will be accepted for grading.

Lateness Penalty:

Because assignments are handled entirely on-line with a precise due date and time, there will be **no opportunity for late submission**. Thus plan accordingly and do not leave submissions to the last minute.

- The "85% rule" is in effect for some of the homework, e.g., GAs, so it is not necessary to provide documentation for a single missing assessment even if there were valid extenuating circumstances. If, however, there is a chronic problem that may cause a student to miss a few quizzes or assignments, this should be discussed with an Instructor during office hours or at an arranged meeting at the earliest opportunity.
- In the case of the Individual Assignments, deadlines are set many weeks in advance to allow adequate time for submission. Do not leave any submission to the last minute!

Missed Tests:

Students with a legitimate reason for missing a course end-of-term exam, such as illness, compassionate grounds, etc., which is confirmed by supporting documentation (e.g., an Attending Physician's Statement accessible from the course website and not simply a physician's letter) may request accommodation from a Course Instructor. Flying home early is not considered a legitimate reason for missing an exam. A student who has missed an exam for a legitimate/documentable reason **must** contact the course Instructor by email (nat1745m@yorku.ca) as soon as he/she is able, and estimate when she/he will provide the appropriate hardcopy documentation. The hardcopy documentation should be scanned and emailed to the course email address within 5 business days of the missed exam. In the case of a missed exam with acceptable, on-time documentation, the student may be given permission to write a deferred Exam. (The original hardcopy documentation should be handed in at the beginning of the deferred exam.) If a student misses a deferred Exam, then the student may be required to submit a formal Petition to the Faculty of Science. **Missing an exam is a serious matter: missing an end-of-term exam can result in a mark of 0 being awarded.**

Plagiarism:

Any material submitted by a student for any graded component of this course must be original to that student unless otherwise explicitly acknowledged. Collaboration with colleagues on sharpening critical skills is strongly encouraged in this class, but it is both unethical and

unacceptable to claim credit for work performed by another without attribution. Cheating and plagiarism – the attempt to gain unfair academic advantage – will not be tolerated at this institution. This includes allowing another student to submit original work – in whole or in part – that you yourself have done. Penalties for all such offences range from a failing grade on the submitted material to expulsion from the University.

Paraphrasing:
To avoid plagiarism, it is common for authors to paraphrase the idea(s) of another; that is, to express in their own words the words of someone else. While this is a legitimate form of expression, the author should still attribute the original source of the idea(s). Moreover, paraphrasing involves a substantial rephrasing of the original author's words, and not merely the substitution of a word or phrase.

Citation:
Citations are part of scholarly work. It is important to adopt a consistent citation style (i.e., footnotes, bibliographies, etc.). There are many such styles some of which can be found at: http://researchguides.library.yorku.ca/styleguides . We expect students to use the APA style in this course which is described in detail at links on this URL.

Copyright and Intellectual Property

The class (Moodle) website is a proprietary repository of materials produced explicitly for the use of students registered in this class. Moreover, the (digital) material on the class website is the intellectual property of the instructors and much of it is under copyright by the textbook vendor. This means that it is unethical and illegal to share this material directly with students not registered in this class or to external websites.

University Policies

Important Sessional Dates
Includes sessional start and end dates, drop deadlines, and withdrawal dates.

Event	Date
Classes begin	Jan 03, 2019
Last day to enrol **without permission** of Course Director	Jan 16, 2019
Last day to enrol with permission of Course Director*	Jan 30, 2019
Last day **to drop** without a grade submitted	March 08, 2019
Winter Reading Week	Feb 16-22, 2019
Last day of Winter Term	Apr 03, 2019
Course Withdrawal Period (withdraw from a course and receive a "W" on	Between March 09 and Apr 03 2019
Examination period (Winter)	Between Apr 09-23, 2019

* No permission to enter the course will be given after this date

For more information or other dates of interest, 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/wa/regobs

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 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