

## Astronomy/Origins 2B03: THE BIG QUESTIONS

September 2011

Astronomy 2B03 is available for credit to any undergraduate at McMaster enrolled at Level II or higher, regardless of home faculty or program.

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*Textbook:* There is no textbook or Coursepack formally used or assigned to this course, thus nothing to buy.

This course will make extensive use of "*Avenue to Learn*". Partial Lecture notes, course details, journals, and tutorial discussions will all be hosted there. Please log on (<http://avenue.mcmaster.ca/>) as soon as possible.

The *Avenue to Learn* site has a variety of reading resources and links for background reading specifically useful for this course. However, it is important (even more than for a normal course) to be at lectures and make your own notes.

The *Avenue to Learn site* will be used throughout the term for posting schedules, information, links to other Websites for further reading and detailed information for the tutorials and projects.

*Tutorial periods:* Once per week. Active participation in weekly scheduled tutorials is a required part of the coursework.

*Marking scheme:* (see the Avenue to Learn site for detailed explanations of each part)

35%	Final exam
16%	One mid-term test
24%	Term Project (Sign-up: 1; Presentation: 15; Proposal: 2; Handout: 5; Peer Evaluation: 1)
15%	Participation in tutorials (not just attendance!)
10%	Individual journal

If you are absent from the university for a minor medical reason, lasting fewer than 5 days, you may report your absence, once per term, without documentation, using the McMaster Student Absence Form (MSAF). Absences for a longer duration or for other reasons must be reported to your Faculty/Program office, with documentation, and relief from term work may not necessarily be granted. When using the MSAF, report your absence to [lparker@mcmaster.ca](mailto:lparker@mcmaster.ca) (not your TA!). Please note that the MSAF may not be used for term work worth 30% or more, nor can it be used for the final examination.

If you miss the midterm, and report this using the MSAF, the marks from the midterm will be moved to the final exam. There is no make-up midterm exam. If you miss a tutorial (not including the tutorial in which you are presenting your project), and report this using the MSAF, the marks from the other tutorials will be re-weighted to account for your excused absence. For any other absence reported using the MSAF you must then contact Dr. Parker immediately (normally within 2 working days) by email at

[lparker@mcmaster.ca](mailto:lparker@mcmaster.ca) to learn what relief may be granted for the work you have missed, and relevant details such as revised deadlines. You must contact the instructor and not your TA about any absences.

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

## OUTLINE OF CURRICULUM

*Prologue: Setting the Stage.*

- What's out there? Things in the universe; planets, stars, galaxies
- The universe as a timeline: the "cosmic calendar" and turning points in its history

*Act I: The Nature of Space and Time*

- The nature of space and time on large scales
- The nature of space and time on small scales

*Act II: Origins*

- The evolving universe: how things change with time, and how we can reconstruct the "history of everything"
- Uncovering the early universe: working backward to the Big Bang

*Act III: Stars and Planets*

- The formation of stars and planets. Our Galaxy as a place to live
- The lives of stars: stellar evolution and end states, including black holes
- The formation of the elements: how everything was made
- Planetary systems. The search for planets around other stars. What have we found? Expectations and surprises. Possibilities for finding Earth-like planets around other stars

*Epilogue: End Games*

- The multiverse: inflationary epoch, string theory
- The far future of the universe as we predict it today.

We also have *special guest lectures* during the term

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### *Statement on Academic Integrity*

McMaster Senate requires the following statement to be included in every course outline.

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at [http://www.mcmaster.ca/senate/academic/ac\\_integrity.htm](http://www.mcmaster.ca/senate/academic/ac_integrity.htm)

The following illustrates only four forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own, or work for which other credit has been obtained through another course.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.
4. Failing to give appropriate credit or acknowledgement to other people's work in project presentations.