

Year 1 Science Inquiry 2007

Purpose of the course

The main objective in term 1 is to help you develop and practice skills which you will then use in term 2. You will learn these skills by using them to define and solve open-ended questions drawn from several thematic areas.

In term 2 you will apply your new skills to projects. You will first work on a mini-project that allows you to practice the skills, and then work on a bigger project of your own choosing. There are only two rules:

1. You must work with other class members.
2. You must *really care* about the question and its answer!

We can help you to find the area and the initial question.

Instructor

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Course website

www.math.mcmaster.ca/kevla/teaching/1sc/home

Please check the course website regularly for important announcements.

Hours

Lectures: Fridays (11:30-12:20) in GS 102 (term 1), Fridays (11:30-13:20) in GS 102 (term 2).

Office hours: Thursdays (14:00-15:00), or by appointment.

Evaluation

There will be many sources of information for the evaluation, but at some point they will be translated into a grade using the following criteria:

A The student has attained a high level of competency in all, or almost all, of the stated skill areas. This competency would allow the student to complete excellent inquiry projects in any area. This would be recognizable by any facilitator and the peer group. The student is aware of any remaining area of weakness, has shown improvement in that area, has developed strategies for minimizing its adverse effects, and has a plan of action for eliminating the weakness.

B The student has attained a high level of competency in many (but not all) of the stated skill areas, or has attained moderate competency in all of the skill areas. This competency allows the completion of good

inquiry projects. The student will have developed a plan of action for further development in those areas which need it.

C The student has attained a moderate level of competency in some of the stated skill areas or has attained a low level of competency in all of the skill areas. The student will recognize the deficiencies or concerns and will have discussed a plan of action to deal with the concerns during their university career.

The evidence will become clear from your involvement with many tools and skills. The exact tools may vary between the different groups, but we have consistent expectations. The tools will include the development and use of criteria for evaluating yourself, your peers, and the scientific literature. You will experience group work, scholarly writing, presentations, discussions, and debates. You will be given opportunities to participate in a variety of formats and to work on those skills which we agree need the most attention.

Year 1 Science Inquiry skills

This is an Inquiry course.

It is offered to first year students but the philosophy and goals are the same as those we have for any student (graduate or undergraduate) and for ourselves. Inquiry is a process of critical thinking rather than a discreet entity with rigid boundaries. Many of us have discussed the process and at McMaster we recognize that inquiry entails the development of skills in two contexts:

- In the context of a body of knowledge.
- In the context of personal growth (evaluation of ourselves and our peers).

We have defined the skills to include the following:

1. **Problem Identification:**

- The ability to ask good questions.

2. **Problem Solving:**

- The ability to determine what needs to be learned in order to answer those questions.
- The ability to identify appropriate resources for learning.
- The ability to use resources effectively.

3. **Peer Persuasion:**

- The ability to report on and discuss what was learned.

Examples of the skills you will learn

1. Setting priorities and managing time; staying on track.
2. Posing a good question and refining it.
3. Identifying sources of information.
 - (a) Finding information in the library.
 - (b) Finding information through online databases.

- (c) Finding information on the web.
 - (d) Finding and interviewing experts.
4. Evaluating information for relevance and validity
 - (a) On a website.
 - (b) In a journal.
 - (c) In a book.
 - (d) From email.
 - (e) From an expert.
 - (f) In a presentation.
 5. Combining information from different sources.
 6. Using information to answer a question.
 7. Presenting the answer and persuading the audience.
 - (a) Orally.
 - (b) In writing.
 8. Working with another person and in a group.
 - (a) Identifying each individual's strengths.
 - (b) Dividing responsibility.
 - (c) Following through.
 - (d) Providing feedback.
 - (e) Dealing with problems in the group's functioning.
 9. Evaluating your strengths and weaknesses in each area.

Academic integrity

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences including 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 types of academic dishonesty please refer to the Academic Integrity Policy, located at www.mcmaster.ca/academicintegrity.

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

The Faculty of Science is concerned with ensuring an environment that is free of all adverse discrimination. If there is a problem that cannot be resolved by discussion among the persons concerned, individuals are reminded that they should contact their Department Chair, the Sexual Harassment Office or the Human Rights Consultant, as soon as possible.