

PHARMACOLOGY 4C03
Principles of Toxicology

September, 2017

COORDINATOR: Dr Alison Holloway (hollow@mcmaster.ca)

COURSE DESCRIPTION:

The objective of this course is to provide information about the mechanisms whereby naturally occurring and man-made chemicals produce toxic effects in biological systems. Both chemical and biological determinants of toxic effects will be examined.

EVALUATION:

Class participation	15%
Written summary	5%
Group presentations	25%
Poster assignment	25%
Grant proposal	30%

*The instructor and McMaster 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 and changes.*

PREREQUISITE: Pharmacology 3A06

FORMAT: 1 tutorial, 3 hours, Tuesday 2:30-5:30pm

LOCATION: HSC IJ8

SCOPE OF COVERAGE

The coverage for each presentation should include the following aspects: epidemiology, exposure, pathways to man, metabolism (including biotransformation), toxicokinetics, pathogenesis, target organ, structure-function relationship, risk and regulation, analytical chemistry, and preventive measures. Critical appraisal of the evidence will be emphasized throughout the course.

COURSE SCHEDULE

<i>DATE</i>	<i>TOPIC</i>
September 5	Introduction to Course Assignment of topics for written summary
September 12	Fact or Fiction? Written summary due Discussion of “headline” problems Poster assignments handed out
September 19	Presentation Group 1 (<i>Cheng, Yun, Chen, R. Wang</i>)
September 26	Presentation Group 2 (<i>Boucouvalas, Zargari, Bianca, S.Wang</i>)
October 3	Presentation Group 3 (<i>Hanman, Sadri, Curtis, Nirmalarajah</i>)
October 10	Reading week
October 17	Presentation Group 4 (<i>Huynh, Sadeghi, Choi, Parzei</i>)
October 24	Presentation Group 5 (<i>McIntyre, Lepard, Ma, Jamshed</i>)
October 31	Poster (electronic version) due Grant proposal topics to be finalized
November 7	Poster presentations
November 14	Poster presentations
November 21	Poster presentations
November 28	Grant preparation
December 5	Grant proposals due

*Student Guidelines for Written Assignments and
Oral Presentations*

A. CLASS PARTICIPATION (15%)

Class participation: You will be evaluated on your contributions to the tutorial. This includes attendance *and* participation in the discussion around the presentations.

Students will be expected to be active learners and participants during tutorials. Students will be evaluated on evidence of their preparedness, ability to contribute meaningfully to the discussion, ability to bring in new ideas and ability to ask good questions. The focus is on the quality rather than the quantity of contributions. In addition, at the end of the term each student will assess all other students in the class in the categories: Responsibility, Information, Communication and Critical Analysis. These evaluations will be based on the student's performance during the entire course and the grades will be used in the assessment of the final participation mark.

It is your responsibility to ensure that you contribute to the discussions surrounding the presentations each week. Although this is difficult for some students this tutorial will provide a supportive environment to encourage all students to express their opinions, contribute additional information and critically evaluate the evidence in the literature surrounding the topics presented.

B. WRITTEN SUMMARY (5%)

Each student will be expected to write a one (1) page summary, single spaced about the headline topic they have been assigned. This summary should include a brief explanation of the problem, an evaluation of the credibility of the headline and as appropriate a comment on the human health risks. Students will be given 1 week to prepare their summaries. The findings will be discussed in class on September 12th, 2017. The mark for the written summary is 5% of the final mark.

C. GROUP WORK AND PRESENTATIONS (25%)

Group presentations: Presentation topics will be assigned during the tutorial by the course coordinator in the class immediately prior to the scheduled presentation date. Each group will have a unique topic and will be responsible for presenting their topic in a format that will cover the pertinent information for the entire class. Every member of each group will present.

The evaluation is as follows. Each student will be given a mark that is 10% of their final mark based on the delivery of their portion of the presentation and ability to answer questions (marked by course coordinator). In addition every member of the group will be given a mark for the presentation based on the content. This mark will be the same for *every* member of the group and will make up 10% of the final mark (marked by course coordinator). At the end of the presentation, every member of the group will provide a peer assessment of the other members of the group based on their contribution to the presentations and group work. These marks will make up 5% of the final mark. Marks for the group presentations will not be released until all the groups have finished their presentations.

Group assignments for oral presentations

Group 1: Cheng, Yun, Chen, R. Wang

Group 2: Boucouvalas, Zargari, Bianca, S.Wang

Group 3: Hanman, Sadri, Curtis, Nirmalarajah

Group 4: Huynh, Sadeghi, Choi, Parzei

Group 5: McIntyre, Lepard, Ma, Jamshed

D. POSTER AND POSTER PRESENTATION (10% poster, 15% oral presentation)

Each student is required to make a poster based on a peer-reviewed manuscript on a topic in toxicology. The articles will be chosen by the course coordinator and randomly distributed to all students in class on **September 12th, 2017**. Each student will design a poster following the guidelines below and will present it to the class. Students will be marked on the poster (clarity, content, format) and their ability to explain the content to the class and course instructor. Each poster will be submitted electronically to the course coordinator (by **October 31st, 2017**) for printing. It is the responsibility of each student to ensure that they pick up their printed poster from the Biology Department in time for their presentation. At the end of term there will be 3 poster sessions where each student will present their poster and answer questions about the content from the class and the course coordinator. The mark for the preparation of the poster is 10% of the final mark and the mark for the oral poster presentation is 15% of the final mark. Marks for the poster assignment will not be released until everyone has completed the presentation portion of this assignment. The marks for the poster and poster presentation are at the sole discretion of the course coordinator.

Late submission of the electronic version of the poster will result in a 25% penalty for each 24 hours the assignment is late. The late penalty will be assessed if the instructor does not receive the electronic version of the poster by email before 2:30pm on October 31st or on a CD at the beginning of class on October 31st. Students who do not have their posters available for presentation at the beginning of the class in which they are scheduled to present will receive 0 (zero) on this assignment.

Poster Assignment Evaluation

In evaluation of the poster, the following criteria will be emphasized:

1. Format (legibility, spelling)
2. **Demonstrated ability to extract key elements from the manuscript for presentation**
3. Clarity of figures

In the evaluation of the oral presentation, the following criteria will be emphasized:

1. Presentation format (i.e., clear objectives; clarity, ability to explain the content of the poster);
2. Synthesis of concepts and issues;
3. Demonstrated knowledge of the field.

The specific marking scheme is as follows:

Poster

Format **5%**

Includes layout/aesthetics (e.g., can you follow the poster; is it visually appealing or too crowded; can you read the text and figure legends) and accuracy (e.g., are there spelling mistakes; are there words missing)

Content **5%**

Includes an assessment of the following questions: 1) does the content make sense and tell a cohesive story; 2) has the student picked the key content from the manuscript for presentation and 3) has the student summarized the findings of the manuscript accurately?

Presentation

Summary of poster: **5%**

Students will be evaluated on the following questions: 1) Is the presentation of the content of the poster summary clear and accurate and 2) did the student do the presentation in the allotted time?

Questions: **10%**

This is an assessment of how well the student can answer questions related to the content of the poster (manuscript) **and the background literature**.

The presentation schedule for this assignment is as follows:

November 7th: Cheng, Yun, Chen, R. Wang, Boucouvalas, Zargari, Bianca

November 14th: S.Wang, Hanman, Sadri, Curtis, Nirmalarajah, Huynh, Sadeghi

November 21st: Choi, Parzei, McIntyre, Lepard, Ma, Jamshed

Poster guidelines

Poster communications are primarily a tool to allow authors to discuss their research with others. They should contain enough information to give readers a good overall understanding of the research. Posters are generally read from a distance of 1-2 metres so legibility and clarity are crucial. Below are some guidelines for poster formatting.

Colour

To ensure clarity, the poster background **must** be a solid colour (including white) and must not include a pattern or image. Choice of colour for font and illustrations is up to the student but it is critical to avoid difficult to read combinations (e.g. green text on red background, light yellow on white background).

Layout

Each poster is to be prepared in PowerPoint and must not exceed the dimensions of 48" wide by 36" high.

The top of the poster should have a banner heading that spans its full width and includes the title, authors and institutions. The title must be easy to read from a distance of 1-2 metres. It should be in

bold sans serif font (e.g. Arial). The names of authors and institutions should be in the same font but smaller.

The main body of the poster should include the following sections: Abstract, Rationale/Specific Aims, Materials and Methods, Results, Discussion and Conclusion. The sections should be arranged vertically, not horizontally so readers can progress in columns from left to right. The headings should be in bold sans serif font (e.g. Arial). All text in the poster including figure legends should be in sans serif font (e.g. Arial).

Content

The content of the poster should be a summary of what you think the important points of the study are (i.e., a précis of the manuscript). This should be in your own words—it is not appropriate to just copy large blocks of text from the manuscript onto the poster.

Abstract: A copy of the abstract should be placed in the upper left hand corner of the poster.

Background: A summary of why this study was undertaken

Specific Aims: A clear statement regarding the specific aims of the study should be stated.

Materials and Methods: An adequate description of the materials and methods is required. Use of diagrams to illustrate methods/procedures is encouraged, especially where this reduces the text.

Results: The results should be presented in several tables/graphs/illustrations and should support the rationale for the study and the conclusions. It is recommended that no more than 6 figures or tables are displayed and in most cases 4 figures is sufficient.

Discussion: A summary of the author's discussion and what they felt was the significance of the results should be presented in this section

Conclusion: There should be a succinct (1-2 line) conclusion summarizing the findings and their relevance.

Further details regarding size and formatting requirements for printing will be provided before reading week (October 3rd, 2017).

D. GRANT PROPOSAL (30%)

The student is required to submit a 5 page (single spaced) grant proposal and ½ page lay summary (i.e. a summary in non-scientific language) on a topic approved by the course coordinator. ***Page limits will be strictly enforced. Any text beyond the 5 page limit will not be read by the instructor.***

The topic must be finalized by 2:30 pm **October 31st, 2017** at the latest although earlier approval is highly recommended. Final approval must be in writing from the course coordinator. ***All students who do not get final approval for their topic by the deadline will have a 10% penalty assessed on their grant proposal.*** This will be applied in the following manner: the grant will be marked out of 90 but the mark will be recorded out of 100 (i.e. even if you get perfect on the grant (90/90) you will receive 90/100 as your final mark).

The grant proposal (5 pages) **must address a research question in toxicology** and must include the following sections.

1. Hypothesis
2. Background (Current state of knowledge)
3. Research plan (Experimental design)
4. Significance of the research

There will be an information/help session the week of October 14th to discuss as a class questions and progress with the grant proposal. Individual meetings with Dr Holloway are also encouraged.

The marking scheme for grants is as follows:

- 5%: Presentation/Style
- 20%: Content
- 5%: Lay summary*

Late submission of the grant proposal will result in a 25% penalty for each 24 hours the assignment is late. The grant is considered late if it is not handed in at the beginning of class December 5th 2017

ACADEMIC DISHONESTY

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/academis/ac_integrity.htm

The following illustrates only three forms of academic dishonesty:

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

In this course we will randomly use a software package designed to reveal plagiarism. Students may be required to submit their work electronically and in hard copy so that it can be checked for academic dishonesty.