**Health Sciences 3FC3 Syllabus**

Science of Fictional Characters
McMaster University, Fall 2017

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**Instructor**
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**Teaching Assistant**
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**Class**
Fall Term, September 7 – November 30, 2017
Thursdays 2:30-5:20 PM in MDCL 3024

**LearnLink Folder**
HTH SCI 3FC3 Science of Fictional Characters

**Course Description**
In science, we sometimes stumble upon observations that are puzzling, confusing, and outright bizarre! And sometimes we lack the tools to investigate the mechanisms that underlie these observations. In such cases, we have no choice but to generate hypotheses about the mechanisms at play by drawing from the existing literature and similar cases in nature. The course upon which you are about to embark is no different – you will use fictional characters as a model to apply and understand key concepts in various scientific disciplines (e.g., biology, psychology, neuroscience). You might, for example, investigate the biological mechanisms that underlie zombie behaviours: Why do zombies have an insatiable hunger for human flesh? Or you might investigate how realistic it is that Pikachu (an electric mouse Pokémon) generates electricity: Are there similar animals in nature? If not, what would need to happen for this to occur? Through the process of investigating fictional characters, you will further develop your scientific inquiry skills and appreciate the interdisciplinary nature of science.

**Course Format & Evaluation**
There is a number of required components for this course; together, they will allow you to utilize and improve the skills you have been accumulating during your undergraduate studies.

1. **Group Project: 60%**
The bulk of the course will be based on a creative report that you will generate to explore the science of a fictional character of your choice. This report must be based on existing literature (i.e., evidence based) and aim to analyze the feasibility of your character in the “real” world. What you choose to study within this framework and how this information is presented is up to your group. You may, for example, present your information in the form of an updated Pokédex entry (an encyclopedia of Pokémon); or perhaps you would rather imagine yourself as a scientist during the zombie apocalypse who is submitting your findings to the Journal of Zombie Psychology. To aid you in this endeavour, there will be a number of activities and discussions throughout the term.

*Refer to the subsections below for an evaluation breakdown of the project; and the Group Project Guidelines PDF for general expectations.*
1.1 Midterm Sharing & Submissions: 30%
On Sept. 28, you will share the plan of action for your fictional character and receive feedback. You will implement this feedback and share with the class your midterm progress on Oct. 26 or Nov. 2. The contents of your midterm progress will be submitted as a written evidence-based midterm report on Nov. 2.

These sessions (plan of action and midterm sharing) are opportunities to teach your peers about your fictional character. Although you have freedom to conduct these sessions however you wish, remember that people tend to learn more if they are an active part of the learning process; therefore, it would be worthwhile to consider how you might include interactivity in your session (so be creative!).

1.2 Debate: 10%
On Nov. 9, you will participate in a debate based on a prompt that will be provided. In preparation for this event, you will submit a one-page summary of your discussion points one week in advance. This will allow your peers to further familiarize themselves with your character(s) and prepare questions for the event. Debate prompt will be provided in class.

1.3 Final Sharing & Submissions: 15%
You will update your report (based on midterm feedback) and submit the final written proposal on Dec. 7. On Nov. 30, you will participate in a cumulative wrap-up activity.

1.4 Group Evaluations: 5%
Twice during the semester, you will individually submit a group evaluation.

2. Individual Infographic: 15%
For this component of your evaluation, you will have the opportunity to create an individual evidence-based infographic to analyze a fictional universe or character of your choice. You will generate a question on which to base your infographic. For instance, if you wish to base your infographic on the Pokémon universe, you may wish to create an infographic that attempts to explain how Pokémon are trained. This will be due on Oct. 5.

3. Thought pieces: 15%
Thought pieces are your chance to reflect, discuss, and elaborate on an event or activity. Specific prompts will be provided in class.

4. Contribution (individual): 10%
Because this is a small, seminar-style course, being involved in the class is essential for a healthy learning environment. Twice during the semester, you will submit a written (one page) self-evaluation, detailing your contribution to the course. These self-evaluations, together with your attendance, feedback to other groups, LearnLink participation, and engagement during presentations and activities, will make up this portion of your grade.
Note: To foster a collaborative environment, all submissions and discussions (with the exception of thought pieces, group evaluations, and self evaluations) will be made publicly available on LearnLink to anyone who has a LearnLink account.

LearnLink
All course correspondence (e.g., updates, news, changes in due dates) will be posted in the main conference folder. It is your responsibility to check this folder regularly. Learnlink should be utilized as a tool for discussions and sharing your progress with the class; this way, you will be able to receive feedback on your progress over the semester.

Skills
The course is designed to allow you to apply and improve on a number of skills that you have been using throughout your undergraduate studies. They are:

1. Personal awareness (e.g., organization, time management)
2. Problem identification (and refinement of a research question)
3. Problem solving (e.g., utilizing and evaluating the literature)
4. Professional communication (oral and written communication with peers and/or experts)
5. Peer collaboration
6. Personal/peer evaluation

Learning Goals/Outcomes
By the end of the course, you will:

1. Further develop scientific inquiry skills (e.g., observation, critical thinking, formulating a hypothesis, development and refinement of a research question, communicating results)
2. Be able to apply existing literature to novel scenarios
3. Appreciate the interdisciplinary nature of science
4. Appreciate the importance of research in advancing knowledge

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, 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 types of academic dishonesty please refer to the Academic Integrity Policy, located at www.mcmaster.ca/academicintegrity.
## Course Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Class Topic/Activity</th>
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<tbody>
<tr>
<td>Sept. 7</td>
<td>Introduction, Group Formation, Team Building, and The Outbreak</td>
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<td>Sept. 14</td>
<td>Case Studies and Scenarios</td>
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<td>Sept. 21</td>
<td>Student-Run Activity (TBD)</td>
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<tr>
<td><strong>Due: Case Study Thought Piece</strong></td>
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<tr>
<td>Sept. 28</td>
<td>Guest Lecture; Group Project Plan of Action Sharing</td>
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<td>Oct. 5</td>
<td>Infographic Sharing &amp; Simplifying Science</td>
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<td><strong>Due: Individual Infographic</strong></td>
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<td>Oct. 12</td>
<td>Fall Break: No Class</td>
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<td>Oct. 19</td>
<td>Video Game Analysis</td>
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<tr>
<td><strong>Due: Simplifying Science Thought Piece</strong></td>
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<td>Oct. 26</td>
<td>Character Workshops I</td>
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<tr>
<td><strong>Due: Group Project Midterm Report, Self-Evaluation 1; Group Evaluation 1</strong></td>
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<td>Nov. 2</td>
<td>Character Workshops II</td>
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<td>Nov. 9</td>
<td>Character Workshops III</td>
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<td><strong>Due: Debate Summary</strong></td>
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<td>Nov. 16</td>
<td>Debate</td>
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<td>Nov. 23</td>
<td>Planning for final class/Guest Speaker (TBD)</td>
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<td>Nov. 30</td>
<td>Scientific Explorations into the Bizarre and the Fantastic (Cumulative Wrap-up)</td>
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<tr>
<td>Dec. 7</td>
<td><strong>Due: Group Project Final Report; Self-Evaluation 2; Group Evaluation 2; Final Thought Piece</strong></td>
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*Please note that due to unexpected circumstances, timing, or feedback from the class, the information in this table (and corresponding evaluations) may change. All changes will be communicated with students.*