

## **BIOLOGY 3FF3 Evolution**

**Term:** Autumn (Fall Term) 2005

**Instructor:** J. R. Stone

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**Objectives:** this course provides for students an opportunity to survey the major theoretical concepts and empirical observations in evolutionary biology.

**Textbook:** Freeman, S. and J. C. Herron. 2003. *Evolutionary Analysis* (3<sup>rd</sup> edition), Prentice Hall, New York.

**Topics:** course content will cover material that is contained in the textbook and, so, could include:

### **INTRODUCTORY MATERIAL**

A Case for Evolutionary Thinking: Understanding HIV

The Evidence for Evolution

Darwinian Natural Selection

### **MECHANISMS OF EVOLUTIONARY CHANGE**

Mutation and Genetic Variation

Mendelian Genetics in Populations I: Selection and Mutation as Mechanisms of Evolution

Mendelian Genetics in Populations II: Migration, Genetic Drift, and Nonrandom Mating

Evolution at Multiple Loci: Linkage and Sex

Evolution at Multiple Loci: Quantitative Genetics

### **ADAPTATION**

Studying Adaptation: Evolutionary Analysis of Form and Function

Sexual Selection

Kin Selection and Social Behaviour

Aging and Other Life History Characters

Darwinian Medicine

### **THE HISTORY OF LIFE**

Reconstructing Evolutionary Trees

Mechanisms of Speciation

The Origins of Life and Precambrian Evolution

The Cambrian Explosion and Beyond

Development and Evolution  
Human Evolution.

**Internet Site:** a WebCT URI will be established to provide a 'course-information repository' Internet site.

**Lectures:** sessions will be delivered on Tuesdays, Thursdays, and Fridays between 1130 and 1220 in HSC 1A1. Material presented during lectures will be made available electronically (probably as .pdf files from Microsoft © PowerPoint presentations) at the Internet site.

**Tutorials:** 10 sections are available:

|     |           |           |           |        |
|-----|-----------|-----------|-----------|--------|
| T01 | Wednesday | 1230-1320 | JHE 329   | Freddy |
| T02 | Thursday  | 1330-1420 | MDCL 1116 | Freddy |
| T03 | Tuesday   | 0830-0920 | BSB B138  | Bart   |
| T04 | Monday    | 1030-1120 | JHE 329   | Abha   |
| T05 | Wednesday | 0830-0920 | T13 105   | Bart   |
| T06 | Friday    | 1330-1420 | T13 105   | Mori   |
| T07 | Wednesday | 0930-1020 | KTH 106   | Maria  |
| T08 | Tuesday   | 0930-1020 | BSB B138  | Maria  |
| T09 | Friday    | 0930-1020 | MDCL 1115 | Mori   |
| T10 | Tuesday   | 1330-1420 | BSB B138  | Abha   |

These sessions will involve informal (enjoyable) activities, which could include debates, discussions, practical exercises, seminar presentations, and provide opportunities to deliver, view, and review reports.

**Evaluation:** a 0-100 scale will be implemented for grading. The final score will be calculated as a sum over

|   |     |
|---|-----|
| Report, Review (5 points each)            | 10  |
| Tutorial Assignments (10 @ 2 points each) | 20  |
| Weekly Exercises (10 @ 3 points each)     | 30  |
| Final Examination (1 @ 40 points)         | 40. |

**Academic Integrity:** please visit the URI [http://www.mcmaster.ca/academicintegrity/instructors/proc\\_forms/AD\\_CourseOutlines.pdf](http://www.mcmaster.ca/academicintegrity/instructors/proc_forms/AD_CourseOutlines.pdf) for details about the academic integrity policy for McMaster University.