



## **EESC04 – Biodiversity and Biogeography Fall 2017**

**Instructor:** Prof. Sandy M Smith (s.smith.a@utoronto.ca), Earth Sciences Bldg, Rm 2011, office hours before or after class throughout the semester (email to set up).

**Teaching assistants:** Felicity Ni (felicity.ni@utoronto.ca),  
Carlos Arnillas (carlosalberto.arnillas@gmail.com).

**Lectures:** Tuesdays 5-7pm, Room IC 200

**Practicals:** Fridays, 9-11am **OR** 11am-1pm **OR** 1-3pm in EV 222 (schedule below)

**Recommended course reading:** Biogeography: An Ecological and Evolutionary Approach (8<sup>th</sup> edition). 2010. C. Barry Cox & Peter D. Moore.

### **Course description:**

Biogeography is the study of the geographic distribution of species, and biodiversity is the study of species richness and relative species abundance. Through lectures and labs, this course explores the origin, maintenance, and loss of biodiversity, from a biogeographic perspective. The course aims to provide students with a broader understanding of what constitutes biodiversity, how it has come to be, and what geographic factors help explain and drive the patterns observed today.

The course begins by examining the state of the world's biodiversity, and covers topics that include i) the major biomes of the world (marine and terrestrial), ii) geologic time scales, iii) continental drift, iv) dispersal, v) abundance and rarity, vi) comparison of biota on continents and islands, and vii) the fundamental influence of climate on biodiversity. Important biological processes discussed in this course include adaptation, speciation, colonization, and extinction. The course concludes with discussion of the invasive role of humans in shaping modern biogeography.

**Course evaluation:**

<b>Course Item</b>	<b>Due Date</b>	<b>Percent</b>
Lab Report 1	Oct. 6	20%
Lab Summary 1	Oct. 6	2%
Midterm exam	Oct. 17	20%
Lab Summary 2	Oct. 27	2%
Lab Summary 3	Nov. 3	2%
Lab Summary 4	Nov. 10	2%
Lab Report 2 and presentation	Dec. 1	17%
Final exam	TBD	35%

**Course content and schedule:**

<b>Week</b>	<b>Lecture</b>	<b>Lecture topic</b>	<b>During this week</b>
1	Sept. 5	Intro to biodiversity and biogeography	Lab 1
2	Sept. 12	Species concepts and species classification	Lab 2
3	Sept. 19	Biodiversity measurements	Lab 3
4	Sept. 26	How many species are there in the world?	Lab 4
5	Oct. 3	History of biogeography; the latitudinal diversity gradient	Lab 5
	<b>Oct. 10</b>	<b>Reading week</b>	
6	Oct. 17	Mid-Term exam	Midterm exam (20%) Lab 6
7	Oct. 24	Guest lecture (TBD)	Lab 7
8	Oct. 31	Major biomes of the world	Lab 8
9	Nov. 7	Speciation, dispersal and extinction	Lab 9
10	Nov. 14	Island biogeography: Life and death of species	Lab 10
11	Nov. 21	Humans shaping modern biogeography	Lab 11
12	Nov. 28	Course review	Lab 12

## Practical lab schedule:

Lab number	Lab date	Lab topic	During this week in the lab
1	Sept. 8	Assessing local diversity Part 1: field work & sampling	Lab 1 report assigned
2	Sept. 15	Assessing local diversity Part 2: species identification	
3	Sept. 22	Assessing local diversity Part 3: species identification (cont.)	
4	Sept. 29	Assessing local diversity Part 4: data analysis, report preparation	
5	Oct. 6	Creating a phylogeny: Phylum Metallica	Lab 1 report due (20%) <i>Lab Summary 1 due (2%)*</i>
	<b>Oct. 13</b>	<b>Reading week</b>	
6	Oct. 20	Diversity of single cell organisms, primitive eukaryotes, and radiates	Lab 2 report/presentation assigned
7	Oct. 27	Diversity of flatworms and invertebrates	<i>Lab Summary 2 due (2%)*</i> Pick Lab 2 teams and organism
8	Nov. 3	Diversity of chordates and vertebrates	<i>Lab Summary 3 due (2%)*</i> Start Lab 2 data download & clean
9	Nov. 10	Biogeography of diverse taxa Part 1: map building	<i>Lab Summary 4 due (2%)*</i>
10	Nov. 17	Biogeography of diverse taxa Part 2: data exploration	
11	Nov. 24	Biogeography of diverse taxa Part 3: data analysis, questions, report	
12	Dec. 1	Biogeography and conservation of diverse taxa Part 4: Group presentations & final report	Lab 2 presentation due in class; written report due 4 Dec (17%)

### Notes on exams

Both the midterm and final exam will draw from lecture and practical materials and includes lecture notes, and any material presented in the classroom that may or may not be posted on Blackboard. Information from the textbook and other resources not directly covered in class or in the practicals will not be tested on exams.

### Midterm test:

A **mid-term test will be held in class on Tuesday October 17th**. The test will consist of multiple-choice, short answer questions, and possibly some calculations. It will be worth 20% of your final grade. **Make-ups will not be given for the mid-term test**. If you miss the test for a verifiable reason (as indicated by a doctor's note), the weight of the midterm will be added to the weight of your final exam, with the permission of the instructor.

### Final Exam:

A comprehensive final exam covering the entire course material will be given during UTSC **examination period worth 35% of your final grade**.

## Course Policies – Written Assignments

### Formatting:

Coursework must be word-processed, 1.5-spaced, 12-point font size. Assignments must include a list of all references cited in the text, using the APA citation style. There is **no need to use a cover page** for any written assignments.

### Submission guidelines:

All assignments must be handed in **hard copy in class (lab)** on the specified due date.

### Late assignments:

Late assignments must be placed in the dropbox on the 2nd floor of Environmental Science Building. Any work submitted after 4:30 PM will be counted as received on the following business day (including weekends).

### Late penalties:

Work submitted late will be accepted with a **5% daily penalty (including weekend days) up to seven days** after the due date. Extensions after the due date will not be granted, unless supported by a verifiable medical certificate is provided (see: <http://www.illnessverification.utoronto.ca/>)

### Plagiarism:

Plagiarism is a serious academic offence. Please read the faculty's guidelines on plagiarism. Do not hesitate to consult with your instructor or TA about strategies that you can use to avoid being accused of plagiarism.

### Email contact, office hours, and communication:

The course instructor will send out important course information by email. Therefore all students are required to have a valid UTSC email address. You are also responsible for ensuring that your UTSC email address is set up and properly entered in the ROSI system.

That said, I am happy to meet with you and encourage you to set up time before or after the lecture on Tuesdays. I am certainly open to discussing lecture material, the nature of the exams, academic programs at UoT, graduate school, and/or career interests.

You may also email me questions about course material. I will make an effort to respond to you within 24 hours during weekdays. My responses will take longer during weekends because I remain offline.

### Course website – Blackboard:

EESC04 uses Blackboard as its course website. To access the EESC04 website go to the U of T portal login page at <http://portal.utoronto.ca>, and log in using your UTORid and password. Once you have logged in to the portal, look for your course modules where you'll find the link to the EESC04 course website.

**Class conduct:**

This is a small class. I remind you that cell phones and other communication devices must be turned off or in silent mode. A 10-minute break in the middle of lecture sessions will be provided. Taking photos, audio and/or video recordings are not allowed unless permission from the instructor is granted.

**Accessibility Statement:**

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodation, please feel free to approach me and/or Accessibility Services Office as soon as possible. I will work with you and Accessibility Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC Accessibility Services staff (located in S302) is available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations [416-287-7560 or [ability@utsc.utoronto.ca](mailto:ability@utsc.utoronto.ca)]

**The Writing Centre:**

The Writing Centre is a free service that provides support for teaching and learning through writing for all UTSC students. The Writing Centre provides service such as one-on-one consultation, drop-in hours, English language development and writing clinics. They are located in AC 210, in the Academic Resource Centre.

**Health and Wellness Clinic:**

The Health & Wellness Centre has trained health professionals to provide medical, nursing, counseling, health promotion, and education services to University of Toronto Scarborough students. Any student with a current student card and a valid health card can use our services. They are located in the Student Centre, UTSC, SL 270.