

## ENV – 230T: Freshwater Conservation

### I. COURSE INFORMATION

---

<b>Instructor:</b>	Prof. Patrick Della Croce
<b>Instructor's Email:</b>	pdellacroce@fus.edu
<b>Office Hours:</b>	Tue/Fri 10:00 – 11:30 (by appointment only) Thu 10:30 – 12:30 (first come – first serve)
<b>Class location:</b>	LAC 3 (North Campus)
<b>Class meeting times:</b>	Wed 13:00 – 15:45

### II. COURSE DESCRIPTION

---

This course explores various aspects of rivers, freshwater lakes, and groundwater aquifers. It provides an introduction to the distinct ecology of these three freshwater systems, their human uses, different approaches to their conservation, possibilities for restoration of degraded systems, and a look at the role that lakes and rivers play in international relationships. During Academic Travel, the class will visit various freshwater systems and will also practice field data collection techniques. Tentatively, the travel will take place in North-East Italy and Slovenia. This course may also include shorter day-trips to local points of interests (from Franklin Course Catalogue)

### III. RATIONALE

---

This course satisfies the Environmental Sciences and Studies core requirements (for ESS major, ESS minor, and combined major).

### IV. COURSE GOALS

---

The broad goal of this course is to make students familiar with the ecology, the functioning, and the significance of freshwater systems.

### V. SPECIFIC LEARNING OUTCOMES

---

Students who successfully pass this course are:

- able to describe the basic physical and chemical properties of water;
- able to describe the role of chemicals, light, and oxygen in freshwater systems;
- familiar with basic concepts of freshwater ecology;
- able to explain the importance of floods and other natural disturbances to the integrity of freshwater systems;
- able to describe the impacts of climate change, pollution, eutrophication, and invasive species on freshwater systems;
- able to discuss major freshwater issues and possible solutions;
- familiar with the scientific method and able to develop hypotheses and test predictions;
- familiar with basic field data collection data analyses techniques and;
- able to report information orally and written using proper scientific style.

### VI. REQUIRED TEXTS AND MATERIALS

---

The majority of the course material will be derived from the books listed here. None of the books is mandatory, but they are all suggested

- *Stream Ecology. Structure and Functioning of Running Waters.*  
Author: J. D. Allan and M. M. Castillo. Second Edition. Springer.
- *For the Love of Rivers – A Scientist’s Journey*  
Author: Kurt D. Fausch, OSU Press

## VII. ASSESSMENT OVERVIEW

---

At the end of the semester you will receive a final score between 0 and 100%, based on:

<b><i>In-class activities</i></b>	<b>55%</b>	
Participation		5%
Assignments		15%
Exam		60%
Final project		20%
<b><i>Travel</i></b>	<b>15%</b>	
Behavior		50%
Participation		50%
<b><i>Final exam</i></b>	<b>30%</b>	

## VIII. ASSESSMENT DETAILS

---

### **In-class activities:**

This score will reflect: (a) your participation during lectures; (b) the quality of your in-class presentations (individual and group works); (c) the quality of your homework assignments; (d) your performance in the midterm exam and; (e) the quality of your final project (which includes a presentation and a paper, see Moodle for details).

### **Travel activities:**

This score will reflect: (a) your behavior during travel (both during and outside of mandatory activities); (b) your participation during travel activities, and; (c) the quality of any possible in-travel assignment (e.g., short-presentations).

Note that specific behavior rules apply for the travel period (see below) and that any violation of these rules may result in a reduced score for travel activities and consequently reduced final score, or in dismissal from travel and/or the course.

### **Final Exam:**

This grade reflects your performance in the final exam.

### **Attendance:**

Regular class attendance is required. You may miss 1 class period without penalty (*justified absence included*), but I will reduce your final score by 5% for each further missed class.

## IX. GRADING POLICIES AND EXPECTATIONS

---

Based on your final score, your final grade will be determined as follows:

Excellent		A = 100% - 93%	A- = 92.9% - 90%
Good	B+ = 89.9% - 87%	B = 86.9% - 83%	B- = 82.9% - 80%
Adequate	C+ = 79.9% - 77%	C = 76.9% - 73%	C- = 72.9% - 70%
Inadequate	D+ = 69.9% - 67%	D = 66.9% - 63%	D- = 62.9% - 60%
Poor	F = below 60%		

Refer to Moodle (or the FUS Catalog) for a more detailed explanation of grades.

## X. HOW TO DO WELL IN THIS COURSE (POLICIES / REQUIREMENTS)

---

### **On-campus part:**

To be successful in this course you have to come prepared to class and be active during lectures. This means that you should: (a) read the book chapters associated with the material covered in class before class; (b) take notes during class; (c) regularly review your

notes and the reading assignments, and; (d) contact me (or ask questions during class) in case something is unclear. This course covers quite a bit of material (some of which may be beyond your main academic interests), so it is important to keep up from the very beginning of the course.

Note that if you miss a class it is your responsibility to find out (from fellow students!) what material was covered and what announcements were made during the missed class.

**Before travel:**

Before travel, it is your responsibility to:

- Check your passport (it must be valid at least through the end of March). Make a photocopy and bring the photocopy to me (I will treat it confidentially).
- Contact me if you have medical conditions, allergies, phobias, or anything I need to know to make the trip safe and comfortable for you and for the rest of the class (see also the questionnaires on Moodle).
- Make sure that you have the appropriate clothing and gear for the travel. Specifically, you will need good shoes for walking (NOT flip flops or sandals), a warm jacket, and rain resistant clothes. March in northern Italy and Slovenia can be wonderful or horrible (weather-wise), so be prepared because regardless of the weather we will spend a lot of time outdoors.

**Rules of conduct, safety issues, and free time during travel:**

- In general, travel activities are equivalent to in-class activities. This implies that the same behavior is expected (e.g., active participation, no earphones, no cell phone use).
- At all times during travel, you must remember that you are representatives of Franklin University Switzerland and ambassadors of your own countries and thus you must behave accordingly.
- You must also remember that you are a member of a class. Your behavior will affect everybody else's experience during the travel. Therefore I expect that you will help each other follow these basic rules during travel.
- If your behavior endangers yourself, a member of the class, the instructor, or the smooth workings of the travel as a whole, you will be sent back to Lugano at your own expenses and you will have to report to the Dean immediately upon arrival. Disciplinary consequences are to be expected in this case.
- You have the responsibility to do all you can to preserve the quality of the places that we will visit and of the facilities that we will use during travel.
- Any actions which interfere with another person's rights, or are disturbing to either Franklin University students or citizens of the place we will visit during travel are considered disruptive and will not be tolerated. This includes disturbances in hotels, restaurants and on public transportation, vandalism, destruction of property, or taking the property of another person.
- During free time always make sure that you go out and come back at least in pairs.
- Remember that for no reason you are allowed to leave the town/city we are in during your free time without my prior consent.
- If you find yourself in trouble, or even just think you might be in trouble, call me, no matter what time it is (I will give you my cell phone number in class).

Other specific instructions/guidelines will be given either during class or on travel.

**XI. ACADEMIC INTEGRITY: STATEMENT ON CHEATING AND PLAGIARISM**

A student whose actions are deemed by the University to be out of sympathy with the ideals, objectives or the spirit of good conduct as fostered by the University and Swiss community, may be placed on Disciplinary Probation or become subject to dismissal from

the University. Cheating is a dishonest action out of sympathy with the ideals, objectives and spirit of the University. Furthermore, cheating reflects negatively on one's personal integrity and is unjust to those students who have studied. See the Academic Catalog for full statement.

## **XII. COURSE SCHEDULE** (subject to change. See Moodle or class for changes)

---

### Classes schedule:

Week 1:	Course and travel overview, water properties and water cycle, precipitations and snow
Week 2:	Watershed hydrology
Week 3:	Freshwater systems: abiotic characteristics (part I)
Week 4:	Freshwater systems: abiotic characteristics (part II)
Week 5:	Freshwater systems: biotic communities (part I)
Week 6:	Freshwater systems: biotic communities (part II)
Week 7:	Pre-Travel discussion and <b>Midterm exam</b>
Week 8-9:	<i>Academic Travel</i>
Week 10:	To be determined
Week 11:	Wastewater treatment, drinking water, and fish farms
Week 12:	University Day (April 10 <sup>th</sup> ). <b>No class</b>
Week 13:	Management and restoration of freshwater systems
Week 14:	To be determined – Projects' preparation
Week 15:	Projects' presentations and course evaluation
<b>Final Exam:</b>	<b>Wednesday May 8<sup>th</sup>, 13:30 – 15:30 (LAC 3)</b>

### Travel schedule (overview, details will be given in class)

Monday 11 <sup>th</sup> :	Departure from FUS and travel to Ragogna, evening lecture
Tuesday 12 <sup>th</sup> :	Monte Ragogna and Tagliamento floodplain, morning and evening lectures
Wednesday 13 <sup>th</sup> :	River and groundwater sampling on the Tagliamento, benthos identification, evening lecture
Thursday 14 <sup>th</sup> :	Visit to Parco delle Dolomiti del Friuli and to the Antonio Pitter hydropower plant, evening lecture
Friday 15 <sup>th</sup> :	Visit to aquarium (native fish) and work with fish conservation agency, wine tasting in the evening
Saturday 16 <sup>th</sup> :	Visit of the Parco della Foce dell'Isonzo and travel to Ljubljana
Sunday 17 <sup>th</sup> :	Morning lecture, Visit of Skocjan caves in the afternoon
Monday 18 <sup>th</sup> :	Visit of Cerknica lake
Tuesday 19 <sup>th</sup> :	Visit of Postojna caves
Wednesday 20 <sup>th</sup> :	Closure lecture (morning) and closure activity
Thursday 21 <sup>st</sup> :	Travel back to Lugano

### Travel Information:

**Bus company:** **Petruz Viaggi** (will provide all transportations)  
Phone: +39-0481-909445  
<http://www.petruzviaggi.com>

**Hotels:** **Casa Rossa ai Colli** Mo 12<sup>th</sup> – Sa 17<sup>th</sup>  
Via Ai colli n.2, 33030 Ragogna, San Daniele del Friuli (UD)  
Phone: +39-338-8895548; [www.casarossaicolli.com/it/home/](http://www.casarossaicolli.com/it/home/)

**Best Western Premier Hotel Slon** Sa 17<sup>th</sup> – Th 22<sup>nd</sup>  
Slovenska 34, Ljubljana, 1000, Slovenija  
Phone: +386-1-4701131; <http://www.hotelslon.com/>