Queen's University (OUPFB Module 24)

Course Title:	**Effects of human development on aquatic environments and biodiversity in Canada and China.**
Instructor(s):	Prof. Yuxiang Wang (Biology, Queen's) 613-533-6134 yuxiang.wang@queensu.ca Prof. Steve Lougheed (Biology, Queen's) 613-533-6128 steve.lougheed@queensu.ca
	Monday, Aug 10 – Sunday, Aug 23, 2020 (14 days)
Location:	Lower and middle reaches of the Yangtze River in Eastern China
Cost:	Estimated Cost: $2,500 ($350 deposit to home university at the time of application) covering all costs of room and board at various field sites, and all local travel. International airfare is NOT included.
Prerequisites:	Completion of 2nd year biology or environmental program or permission of the instructors.
Enrolment*:	Maximum of 14 (4) students from OUPFB and 16 students from 4 partner Chinese universities (Fudan, Tongji, China Southwest and Beijing Normal Universities).
Course Description (brief):	This course provides Canadian & Chinese students with first-hand experience with tools for environmental and biodiversity assessment, and insights into the interaction between human development and the environment, with focus on selected aquatic ecosystems in both China and Canada. This 2-week field course takes place exclusively in China where we will visit the Shanghai/Jiangsu/Zhejiang area (Dongtan Reserve on Chongming Isl. of Shanghai, the Grand Cannel system, various wetlands, and Tai Lake), with potential visits to other conservation areas and wetlands along the Yangtze River. Students will learn about differing attitudes and perceptions of development and biodiversity in the two cultures. We will visit a series of aquatic sites along the Yangtze River, and undertake some comparative research on habitat degradation, quantifying biodiversity, and assessing water quality. Guest researchers will illuminate major issues in aquatic habitat degradation, bioremediation, and biodiversity conservation. Students will write a major paper on their research upon return to their home institutions. The course is organized around five themes: 1) Biodiversity assessment, 2) Habitat assessment including reconstructed wetlands, 3). Aquatic environmental degradation, 4). Water control & usage, 5) Relationship between social economic development and aquatic environment. See: http://post.queensu.ca/~yuxiangw/teaching/fieldcourse.html for more information.
Evaluation:	Course participation (20%), Field journal (10%), Blog (10% - e.g. see https://chinacanada2018.sclougheed.ca), Seminars (20%), Final report (40%)

An Average Day – What to Expect

(a) Daily timeline	Activities will vary across days. Here is an example of what one such day might look like: 6:00am Bird hike, 7:30 am breakfast, 8:30am GPS instruction and basic training practicum, 9:30 am GeoCaching exercise, 12:00 Lunch, 13:00 wetland plant diversity survey, 16:00-17:30pm free time, 17:30 Dinner, 19:00-22:00 students seminars and discussion, 22:30-23:30 field journal and group debriefing.
(b) Work habitat & Physical exertion	We will engage in some activities that require physical exertion. For example, we will undertake a few daily hikes in the field that might be 4-6km carrying small field gear. We will also do some benthic invertebrate survey in chest-wader, and fish and frog catching, wetland surveys, and lake shore walks that will require using hip or chest waders. Be prepared for some heat and humidity during the day, long-hours in the field (rain-or-shine), some biting insects and ticks. As there are no outhouses or toilets in the field away from the station buildings, you may have to use the woods or squatting toilets when the need arise.
(c) Common activities	Activities in the course will be varied and involve hiking, sometimes with field gear, and possibly rowing small skiffs, water work using hip and chest waders. Some activities may involve observations requiring standing or sitting for long periods. Students should bring suitable footwear (light hiking boots), wide-brimmed hats, long, light-weight pants, and rain jackets. We will ensure that we bring sufficient water and use sunscreen as some days may be quite hot and some walks somewhat arduous. We may do some work along road sides and will exert all due caution wearing bright clothing and exiting vehicles cautiously. We will also do some night work and all participants should bring head lamps.
(d) Weather, dehydration, & biting insects	August are typically the hottest and most humid month along the Yangtze River with daytime temperatures on occasion exceeding 35 degrees. We will work in such heat, rain or shine, but will be sure to carry water and always use appropriate clothing. There will be mosquitoes. Students can use repellent and tuck the cuffs of their field pants into their socks to mitigate these concerns.
(e) Toxic/poisonous, wildlife/ plants	**Risk:** Insect stings & bites. **Hazard:** During summer field personnel there is a possibility of insect bites (mosquitoes are common). Even personnel without history of allergic reaction may react because they have never before been exposed. **Mitigation:** At any sign of anaphylaxis one should contact medical facility for immediate evacuation via cell phone if there is signal or land-line from the lodge. Always carry benadryl as this may lessen the reaction. For researchers working far from roads or our facility it may be well to carry an epipen or two, although these require prescriptions.
(f) Sleeping, washroom & laundry facilities	Students will have indoor accommodations in various stations and hotel guest house typically in shared rooms with multiple beds. Students should bring their own sheets and light sleeping bags. There are shared flush toilets and showers either in the same buildings as bedrooms or in another building. A self laundry services and air-dry hanging racks or lines are available.
(g) Meal plans & food allergies	All meals are provided by the course. Most food allergies can be accommodated including peanut, seafood, and gluten with advanced notices.
(h) Non-academic responsibilities	Students are expected to keep their shared living accommodations clean, and to ensure that they leave it as they found it at the end of the course
(i) Degree of isolation	While we are somewhat isolated, we will make local trips where students can pick up snacks. Some of the stations we are staying have WiFi and there is no issue with recharging telephones, cameras or computers (AC electricity supplies are 220v in China). The station has first aid supplies and we are within 1h to hospitals.
(j) Alcohol & drugs	We follows the university's policies on alcohol use: See https://www.queensu.ca/secretariat/sites/webpublish.queensu.ca.uslcwww/files/files/policies/board/StudentCodeOfConduct.pdf
(k) Vaccinations/ Insurances	Students should have all routine vaccinations including an up to date tetanus shot.
(l) Social Situations	The places are travelling to are reasonably populated urban, suburban and rural areas in China. Some of the facilities we use have concurrent research activities. This means that we request that all users respect the space and needs of others and this includes limiting noise late at night or early in the morning.
(m) Final comments	We have run this course since 2005 alternating between China and Canada. The China version of the course has always been well received and we make adjustment continuously based on the availability of facilities and feasibility and seasonality of our activities. Bringing together Chinese and Canadian students offers a wonderful opportunity to learn about different cultures and approaches to conservation and science.