Global Summer School 2020
Learn. Create. Grow.

Biotechnology Lab

Course Description

Powerful biotechnology is utilized in many fields of scientific research and practical applications. This summer school program introduces students to fascinating concepts of biotechnology through intensive laboratory work. Sustainable management of fish health, fish populations, and their ecosystems are used as case studies. Through this course, students will gain first-hand experience with: i) environmental DNA (eDNA) metabarcoding techniques to characterize aquatic communities, ii) applying population genetic data in management contexts, iii) fish health management, iv) fish health diagnostic techniques, and v) techniques for analyzing chemicals such as pheromone components, hormones or metabolites. Overall, students will learn how these tools are being used to conduct cutting-edge research on fish, their ecosystems, and to inform fisheries management decisions. Students will gain familiarity in relevant steps of applying biotechnology and fish health concepts to fishery science; from sample collection, sample analysis, and data analysis, to the interpretation of results, and formulating management recommendations.

Instructor

Faculty at the MSU Department of Fisheries and Wildlife will instruct the course, including Drs. Thomas Loch, John Robinson, Weiming Li, and Mary Tate Bremigan. The Department strives to meet the global challenges that threaten the sustainability of Earth's ecosystems. They teach the knowledge, skills, and tools needed to safeguard our natural heritage and promote quality of life for all.

Spend an unforgettable summer at Michigan State University!

July 15 to August 6:
Arrival and Check-In: July 17
MSU East Lansing Campus: July 15 to July 29
East Coast Trip: July 30 to August 6

Program Fee:
$4,030
Includes eDNA test cost

Visiting International Professional Program
MICHIGAN STATE UNIVERSITY

Course Schedule

All morning sessions from 9 am to 12 pm with 30-minute break
All afternoon sessions from 2 pm to 4 pm

	Mon 13	Tue 14	Wed 15	Thu 16	Fri 17	Sat 18	Sun 19
AM			Arrival & Check-in	Orientation	Intro to Fisheries Research at MSU	Field Trip to Detroit	Field Trip to Ann Arbor & Tanger Outlet
Lunch							
PM				Campus Tour & Team Building	Field trip to Corey Marsh Ecological Research Station		
	Mon 20	Tue 21	Wed 22	Thu 23	Fri 24	Sat 25	Sun 26
AM	Intro to Population Genetics and eDNA Applications	Intro to PCR, Database Development	Electrophoresis of PCR; Intro to Data Analysis	Intro to Fish Health Management	Fish Necropsy and Intro to Aquatic Animal Diagnostic Techniques	Field Trip to Lake Michigan	Free Time
Lunch							
PM	Field Trip for eDNA sampling	VIPP Activity*	Guided demonstration of eDNA data analysis	VIPP Activity*	Intro to Techniques for Chemical Analysis		
	Mon 27	Tue 28	Wed 29	Thu 30	Fri 31	Sat 1	Sun 2
AM	Field trip to Wolf Lake State Fish Hatchery	Synthesis: Lessons Learned Reapplications of Biotechnology for Fisheries Science	Last Class/ Student Presentation & Certification	East Coast Trip July 30 - Aug 6 (8 Days)			
Lunch			Packing				
PM		VIPP Activity*	Farewell BBQ				

Program Fee of $4,030 Includes:

Priceless American college experience

Breakfast & lunch on MSU's campus

On-campus housing

Health insurance

Local transportation to & from all field trips

East Coast trip

NOTE: Fee does not include international or domestic airfare, MSU dinner, or any other living cost.

Admission Requirements: At least 18 years old, undergraduate student or master degree student at any accredited college, and intermediate English skills

APPLY TODAY!

Apply online at **www.vipp.isp.msu.edu**
Apply before **May 31, 2020**.
Contact us at **vippmsu@msu.edu** for further information.

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