Fish Ecology 2017
ESPM C115C / IB C176L Syllabus
Lecture: Tues/Thurs from 10:10-11:00 in Mulford 132
Lab: Tuesdays/Thursdays 1:10-4 in 36 Mulford

Goal: Most fisheries problems occur and are addressed in definable habitats, though migratory species depend on several habitats. Fish Ecology's goal is to examine a variety of North American aquatic habitats and explain the physical factors (such as temperature, substrate, salinity, etc.), biotic factors (chiefly predation and competition), and human-related factors (dams, pollution, water removal, fishing, logging, etc.) that affect the diversity and abundance of fishes. We will thus explore the ways in which the important themes of basic and applied ecology are played out in different aquatic habitats. Fish Ecology will focus on North American habitats but there will be a strong emphasis on California because 1) we have best access to the information, 2) students can identify with these habitats, 3) this focus will help them in their careers, and 4) we have several representative habitats to examine near campus.

This course will teach students to link general ecological principles with specific habitats and species. It will deal with applied aspects such as invasive species, fishing, and habitat alteration but will be designed around habitats rather than specific land-use and management issues. Linkages will be drawn between habitats by both their physical aspects (flow from stream to river or lake, riverine and tidal aspects of estuaries, etc.) and biological aspects such as migration between habitats.

bCourses site: Look here for course information, datasets, and weekly readings and quizzes

Course Meetings: There will be two lectures and one lab session per week. The lectures are scheduled from 10:10am-11:00am on Tuesdays and Thursday, followed by a 3 h lab from 1:00-4:00pm on Tuesdays or Thursdays. Lab sessions will be used for learning the inland fishes of California, a field trip, and examination and discussion of material and data from the field trips. The specific schedule will be announced in class.

Responsibilities:
The responsibilities of the **instructor and teaching assistant** are to:
(1) present important, relevant information and concepts in a stimulating manner
(2) organize field and laboratory experiences that expand and enhance course topics
(3) teach students to synthesize data and concepts into papers in scientific format

The responsibilities of the **students** are to:
(1) attend and participate in all class and laboratory sessions
(2) read the assigned material
(3) hand in papers on time

Fish Ecology (ESPM C115C/IB C176L) Grading

There are 100 possible points in this class, with the following breakdown:

Item	Possible points
Midterm 1	10
Midterm 2	15
Final Exam	25
Weekly reading & quiz	5
Course participation	5
Lab notebook	10
Lab practical	10
Strawberry Creek data analysis	5
Strawberry Creek draft slides	5
Strawberry Creek presentation	10
TOTAL POINTS	**100**

Fish Ecology Spring 2018 Schedule

Month	Day	Topic
Jan.	16	**NO LECTURE**
	Lab	**NO LAB – PICK UP READER, READ INTRO LAB MATERIALS**
	18	Course introduction, schedule, and responsibilities
	Lab	**NO LAB – PICK UP READER, READ INTRO LAB MATERIALS**
	22	**weekly online quiz due (1)**
	23	Coastal streams: Physical characteristics
	Lab	Library session, lab notebooks, fish morphology, dichotomous keys;
	24	Coastal streams: Fish fauna
	Lab	Library session, lab notebooks, fish morphology, dichotomous keys;
	29	**weekly online quiz due (2)**
	30	Human impacts in coastal streams: influence of logging on stream habitats
	Lab	Fish identification 2
Feb.	1	Rivers: Physical characteristics and dam effects
	Lab	Fish identification 2
	5	**weekly online quiz due (3)**
	6	Rivers: Fish fauna with a focus on salmon
	Lab	1-2pm: Strawberry Creek overview and field trip goals
		2-4: Fish identification 3
	8	Human impacts in rivers: dams and hatcheries
	Lab	1-2pm: Strawberry Creek overview and field trip goals
		2-4: Fish identification 3
	13	**MIDTERM 1 (coastal streams, rivers)**
	Lab	Strawberry Creek field trip
	15	Delta: Overview & water projects
	Lab	Strawberry Creek field trip
	19	**weekly online quiz due (4)**
	20	Delta: Fish fauna
	Lab	Strawberry Creek data analysis 1; **DATA 1 DUE**
	22	Delta: Floodplains (engineered and natural)
	Lab	Strawberry Creek data analysis 1; **DATA 1 DUE**
	27	Estuaries: General physical characteristics
	Lab	Strawberry Creek data analysis 2; **DATA 2 DUE**
Mar.	1	Estuaries: Larval retention/emigration
	Lab	Strawberry Creek data analysis 2; **DATA 2 DUE**

Month Day		Topic
Mar.	5	**weekly online quiz due (5)**
	6	Estuaries: Case study - San Francisco Bay
	Lab	Fish identification 4; **SLIDES DUE**
	8	Estuaries: Case study - intermittent estuaries
	Lab	Fish identification 4; **SLIDES DUE**
	13	Oceanography: introduction to physical oceanography
	Lab	**STRAWBERRY CREEK GROUP PRESENTATIONS**
	15	Oceanography: fish fauna and introduction to biological oceanography
	Lab	**STRAWBERRY CREEK GROUP PRESENTATIONS**
	20	Oceanography: climate variability
	Lab	Fish identification 5
	22	**MIDTERM 2 (Delta, estuaries, oceans)**
	Lab	Fish identification 5
	27	**NO CLASS – SPRING BREAK**
	29	**NO CLASS – SPRING BREAK**
Apr.	3	Lakes: Introduction to limnology
	Lab	Fish identification 5
	5	Lakes: Biological aspects of fish production
	Lab	Fish identification 6
	9	**weekly online quiz due (6)**
	10	Human impacts in lakes: Acid rain and thermal pollution
	Lab	Fish identification 7
	12	Great Lakes: Physical traits; introduction to fishes
	Lab	Fish identification 7
	16	**weekly online quiz due (7)**
	17	Great Lakes: Fish community and human impacts
	Lab	Fish identification 8
	19	Deserts: Overview, introduction to habitats and desert pupfishes
	Lab	Fish identification 8
	24	Deserts: Colorado River fishes
	Lab	**LAB PRACTICAL & LAB NOTEBOOKS DUE**
	26	Course review and conclusions, class evaluations
	Lab	**LAB PRACTICAL & LAB NOTEBOOKS DUE**
May	11	**FINAL EXAM (3:00-6:00pm; location T.B.A.)**