Fish Ecology 2017
ESPM C115C / IB C176L Syllabus
Lecture: Tues/Thurs from 11:10-12:00 in Moffitt Library 106
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.

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GSIs:	Jordan Wingenroth	j.wingenroth@berkeley.edu
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Office Hours:	Stephanie Carlson:	Mondays 2:00-3:00pm, Mulford 33
	Anneliese Sytsma:	Wednesdays 3:00-4:00pm, Mulford 36
	Jordan Wingenroth:	Fridays 10:00-11:00am, Mulford 36

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 will be scheduled from 11:10am-12:00pm on Tuesdays and Thursday, followed by a 3 h lab/field trip from 1:00-4:00pm on Tuesdays or Thursdays. Lab sessions will be used for learning the inland fishes of California, field trips, 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 2017 Schedule

Month	Day	Topic
Jan.	17	Course introduction, schedule, and responsibilities
	Lab	Library session, lab notebooks, fish morphology, dichotomous keys; fish identification 1
	19	Coastal streams: Physical characteristics
	Lab	Library session, lab notebooks, fish morphology, dichotomous keys; fish identification 1
	23	**weekly online quiz due (1)**
	24	Coastal streams: Fish fauna
	Lab	Fish identification 2
	26	Human impacts in coastal streams: influence of logging on stream habitats
	Lab	Fish identification 2
	30	**weekly online quiz due (2)**
	31	Rivers: Physical characteristics and dam effects
	Lab	1-2pm: Strawberry Creek overview and field trip goals 2-4: Fish identification 3
Feb.	2	Rivers: Fish fauna with a focus on salmon
	Lab	1-2pm: Strawberry Creek overview and field trip goals 2-4: Fish identification 3
	6	**weekly online quiz due (3)**
	7	Human impacts in rivers: dams and hatcheries
	Lab	Strawberry Creek field trip 1
	9	Delta: Overview & water projects
	Lab	Strawberry Creek field trip 1
	14	**MIDTERM 1 (coastal streams, rivers)**
	Lab	Strawberry Creek field trip 2
	16	Delta: Fish fauna
	Lab	Strawberry Creek field trip 2
	20	**weekly online quiz due (4)**
	21	Delta: Floodplains (engineered and natural)
	Lab	Strawberry Creek data analysis 1; **DATA 1 DUE**
	23	Estuaries: General physical characteristics
	Lab	Strawberry Creek data analysis 1; **DATA 1 DUE**
	27	**weekly online quiz due (5)**
	28	Estuaries: Larval retention/emigration
	Lab	Strawberry Creek data analysis 2; **DATA 2 DUE**
Mar.	2	Estuaries: Case study - San Francisco Bay
	Lab	Strawberry Creek data analysis 2; **DATA 2 DUE**

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