

SIO 285 Physical-Biological Interactions Syllabus
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Spring 2019

Date	Topic
April 2	Introduction, calculus, scaling, dimensional analysis
April 4	Flux, flux divergence
April 9	Momentum equations
April 11	Swimming, accumulation, AR-1 model
April 16	Low Reynolds number flows and biology
April 18	Turbulence
April 23	Small-scale physical-biological interactions
April 25	Thin layers
April 30	Linear internal wave physics
May 2	Linear internal wave biology
May 7	Nonlinear internal waves
May 9	Mixed-layer physics
May 14	Mixed-layer biology
May 16	Fronts
May 21	Meanders, instabilities, and sub-mesoscale dynamics
May 23	Wind-driven upwelling, downwelling and relaxation
May 28	Tidal fronts
May 30	Special topic
June 4	Student presentations
June 6	Student presentations

Marking: 40% problem sets 60% term project

1-page abstract for term project due April 25

Feel free to talk with me before then to discuss the project

Term projects will be oral presentations during exam week. Talks will be AGU/ASLO style: (from the ASLO web site: "Talks will be scheduled in 15-minute time slots. We strongly encourage a presentation of no more than 12 minutes to allow three minutes for discussion and to entertain questions from those in the audience. The time limit will be strictly enforced to facilitate movement between sessions.")

Also hand in a two-page-plus-figures summary of talk

- Work together on problem sets - get to know each other
- Text is my notes. You may also find Mann and Lazier useful, as well as other PO and BO texts.
- Lots of good material in the primary literature – download the papers I cite, and read them.
- Class web site: spiff.ucsd.edu/SIO285 - has lecture notes, problem sets, etc. (Note capital "SIO" in url.)
- Class will be from 9:30 - 10:50, Tuesdays and Thursdays