

BIOL 466: Frontiers in Marine Biology
THE DEEP SEA

Instructor

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Schedule (CRN 20374)

Mon, Thurs 1300 – 1420h
HSD A270 (occasional class in WRI A319)

Description: This course explores new advances in topics related to ocean biology. This year we will focus on the deep sea with an eye on the tremendous challenges that face scientists and society over the next decade. Ocean change is rapid and unpredictable. Research programmes are struggling to understand species responses in the context of whole communities and ecosystems – and the effects on humans. We will explore contributions to this analysis by examining specific systems, approaches and ecosystem integration.

In addition, as the prospect of the “Blue Economy” grows larger, many issues around ocean governance on the high seas affect the two largest ecosystems on Earth. We will also explore just a few of the instruments that are now in development to exploit and/or protect marine environments and biodiversity.

Lectures: I offer a basic interactive lecture style to which I bring background preparation and deep-sea experience; you bring your ideas based in some reading and your interests. The “text” for this course is the paper by Ramirez-Llodra et al (*Deep, diverse and definitely different: unique attributes of the world’s largest ecosystem*); read it all.

I will also have some required readings that will be partly addressed in class. “Required” means that you are expected to contribute discussion and comment. Please read before the class and prepare a question or comment.

We will have three guest lecturers to give you expert insight into specific topics. Please ‘exploit’ them with questions to acknowledge the time they invested in us.

Assessment:

Test	20
Dataproject 1: Background, objective	10
Dataproject 2: Results/Discussion	25
Presentation	5
Class participation	5
Exam (Take Home)	35

Draft for Jan 2019

Project: The main assignment for the course is a project related to deep-sea exploration. You will gather data from deep-sea dives on seamounts in the Pacific conducted in 2017 by the NOAA Ocean Exploration Program. Each student is assigned their own dive. Your observations will have enough rigour to allow comparisons among your dives. Analysis will not be complex or beyond the skills you should have. You will be among the first to look at these beautiful unknown places; I hope you find it interesting.

There will be two reports submitted and a brief presentation on your results.

PROJECT DUE DATES:

Report #1 – Feb 1

Report #2 – Mar 15

- Reports are typed and include graphics. Please print to a PDF and email to me.
- I acknowledge receipt so if you don't hear, I missed it.
- I make comments on the PDF – look for the comment boxes.

Lecture Schedule
~ subject to updates ~

DDD= Deep, Diverse and
definitely Different

DATE	class	TOPIC	PRESENTER	Paper
Jan 7	1	Intro; Ocean exploration	VT	DDD
Jan 10	2	Deep Env't; Seatube	VT; FdLeo	DDD
Jan 14	3	Project Overview	VT	Handout
Jan 17	4	Deep-sea concepts	VT	Danovaro
Jan 21	5	Microbial processes	S. Murdock	suggested
Jan 24	6	OMZ and hypoxia	VT	DDD; Breitburg
Jan 28	7	Chemosynthetic systems	VT	Tunnicliffe
Jan 31	8	Pelagic world Ocean Governance	VT	DDD
Feb 4	9	In-group discussion Carbon cycle and fish	Class in WRI A319	suggested
Feb 7	10	Canyons	F. De Leo	
Feb 11	11	Deep-sea diversity	VT	Woolley et al
Feb 14	12	TEST		
Feb18/21		BREAK		
Feb 25	13	Seamounts	VT	Suggested
Feb 28	14	Seamounts & conservation	C. Du Preez	DDD
Mar 4	15	Hot Vents I	VT	DDD
Mar 7	16	Hot Vents II	VT	
Mar 11	17	Connectivity	VT	Gaines
Mar 14	18	Metapopulations	VT	
Mar 18	19	Ecosystem function/services	VT	Thurber et al.
Mar 21	20	<i>Presentations</i> EX1703&1706	class	
Mar 25	21	<i>Presentations</i> EX1708; Anthropogenic impacts	class	suggested
Mar 28	22	Anth impacts cont'd	VT	TBD
Apr 1	23	Vent mining	VT	
Apr 4	24	Summary	VT	DDD

Other Information

UVic Grading Scale: A+ (90-100); A (85-89); A- (80-84); B+ (77-79)
B (73-76) B- (70-72); C+ (65-69); C (60-64); D (50-59); F (0-49)

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Diversity: The University of Victoria is committed to fostering inclusive practices in and out of the classroom. As your instructor, I am also highly committed to inclusionary principles that not only tolerate differences in race/ethnicity, age, gender, sexuality, socio-economic status, first language, country of origin, ability, etc. but that welcome these differences as enriching to all members of this course and the wider community. Your diverse positions, identities and experiences will inform much-needed diversity in class discussions.

Feedback: The Course Experience Survey is a useful mechanism to communicate to me. Please give me, and the Department, your feedback.

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