

Marine Photosynthesis, Schedule 14-23/5/2023

Pre-course viewing/reading

Photosynthesis: Light reactions (**Nir**, recorded lecture, Taiz and Zeiger. Plant Physiology Chapter 7)

Photosynthesis: Carbon Reactions (**Nir**, recorded lectures, Taiz and Zeiger. Plant Physiology Chapter 8)

Photosynthesis: Ecological and physiological considerations (**Nir**, recorded lectures, Taiz and Zeiger. Plant Physiology Chapter 9).

Recorded lectures can be found in the course's [google drive](#).

Sunday 14/5	08:30 -09:15	Opening of course (Eitan, Nir)
	09:30 - 10:00	Basic quiz on photosynthesis
	10:15- 12:30	Lectures –Introduction to the biophysics of light reactions (Nir)
	12:30 -14:30	Lunch - Food shopping/ get snorkelling gear
	14:30 -16:00	Lecture/ Activity - Aquatic photosynthetic organisms I – evolution of phytoplankton (Ilana)
	16:30-18:00	Lecture/Activity. What controls photosynthesis & primary production at sea I + II
Mon 15/5	18:30-19:30	Projects introduction – TAs
	07:00-08:00	Guided snorkeling (Dani and TA's)
	09:00-11:00	Lecture – Aquatic photosynthetic organisms II - Marine macroalgae (Guest Lecturer – Eitan Solomon)
	11:15-13:00	Lecture - Methods of measuring photosynthesis (Nir)
	13:00-14:00	Lunch
	14:00-17:00	Project preparation (work groups)
	17:00-18:30	Discussion – papers for journal club
	19:00-20:00	Lecture: coral photosynthesis (Dani).
Tues 16/5.	08:00-09:30	Lecture - Measuring Primary production in the oceans (Ilana)
	09:30 – 13:00	Methods of measuring photosynthesis and primary production (Dani, Eitan, Ilana, Nir and TAs): Demonstrations of measuring photosynthesis and primary production biomass changes, carbon uptake, oxygen evolution, stable isotopes (triple isotopes), indirect methods – fluorescence (PAM & LabStaf, Chl <i>a</i> fluorescence).
	13:00-14:00	Lunch
	14:00-15:00	TA presentations on their research projects related to marine PS
	15:00-20:00	Projects group work & work on journal club
	Wed. 17/5	08:00-14:00
Objective :		Demonstrate methods of measuring photosynthesis at sea (Ilana) + phytoplankton project sampling
14:00-15:30		Lunch
16:00 – 18:00		Phytoplankton lab (Ilana) + Project work
18:30 – 19:30		Journal Club - presentations
Thurs.18/5	08:00- 15:00:	Project work
	13:00 -14:30	lunch and food purchases
	15:00 - 16:30	Group visit to aquarium (Mitzpe Yami)
	17:00-18:00	Guided Snorkeling (Dani)
	19:00 – 20:00	Lecture – Global change and primary productivity in the oceans (Ilana)
Fri. 19/5	08:00 -15:30	Project work
Sat. 20/5.	1630 to Shabbat.	Independent work readings and material for exam on your own to enjoy Shabbat.
		SHABBAT SHALOM.....

20:00-21:30 Final Exam

Sun. 21/5. **08:00 -All day** Project work
1600:1800 Photosynthesis in marine organisms over geological time scales (**Dani**)
20:00 Evening Snorkeling – bioluminescence and fluorescence in the reef (**Dani and TAs**).

Mon. 22/5. **08:00- 17:00**** Project work all day
14:00-15:00 Mashov (feedback on course)
17:00 - 19:00 presentation of projects
20:00 BBQ if desired /also for vegans and vegetarians

** return of all diving/snorkeling equipment

Tues. 23/5. **08:00-10:00** Outlining and assignments for project reports, cleaning.

END OF COURSE.

Recommended Readings for Course

- 1) Sven Beer, Mats Björk, John Beardall, 2014. Photosynthesis in the Marine Environment. 1st Edition. Wiley Press.
- 2) Falkowski P.G. and Raven J. 2006. Aquatic Photosynthesis. 2nd edition.
- 3) Phytoplankton and Their Role in Primary, New, and Export Production. Paul G. Falkowski · Edward A. Laws · Richard T. Barber · James W. Murray. 2004 (pdf attached).