Emnerapport BIO201 Økologi 2019

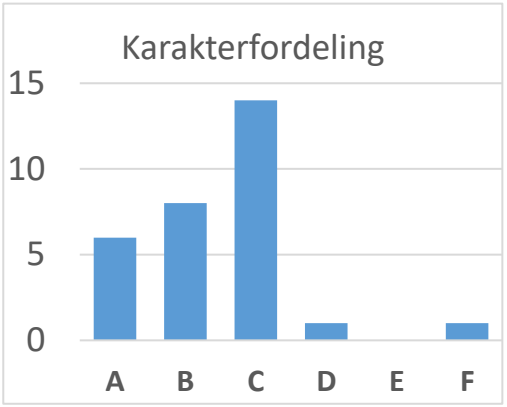
Emneansvarleg: Øyvind Fiksen, Assistentar: Florian Muthreich og Leah Strople

Kursdesign (sjå vedlegg A)

Statistikk

Antal studentar som fullførte emnet: 29

Karakterfordeling:



Studentevalueringar (sjå Vedlegg B)

Generell kommentar og vurdering (emneansvarleg)

Formatet på BIO 201 var ganske likt som i 2018, basert på eit team-based-inspirert opplegg der forelesingstida i klassen stort sett var å svare på spørsmål og quiz, først individuelt i PollEv og så i gruppa med IF-AT skrapelodd, og til slutt gruppediskusjon om meir generelle spørsmål. Denne fellesaktivitieten i undervisningsrom er retta inn for å få ein aktiv diskusjon mellom studentane om stoffet i læreboka, og er retta inn mot muntleg eksamen – dei spørsmåla og quizzane som vart lagt fram var alle aktuelle for muntleg eksamen.

Det var nokre nye element i år:

1) Nytt læringsrom. Undervisninga gjekk i den nye aktive læringsrommet på fakultetet (i Realfagsbygget). Det har plass til 36 studentar i 6 grupper. Sjølv om opplegget var om lag det same som året før, så forandra rommet noko på gruppearbeidet i timane, det blir lettare å samarbeide om prosjektoppgåvene med felles skjerm. Og det blir enda mindre aktuelt med tradisjonelle forelesingar. Teori blei gjennomgått på whiteboarda rundt i lokalet.
2) Labprosjekt. Vi gjorde eit enkelt eksperiment med klekkesuksess hos bønnebiller, med øving i eksperimentelt design, labarbeid, dataanalyse og rapportskriving. Dataanalysen blei utført i R.
3) Omlegging muntleg eksamen. Studentane fekk ha med seg eigne notater inn til førebuing til muntleg eksamen.

Studentane sine tilbakemeldingar er stort sett bra, men dei etterlyser meir oppsummering i plenum av oppgåver og til dels og forelesingar. Forelesingar er utfordrande i læringsrommet, men det kunne kanskje vere nyttig å brukt korte introduksjonsvideoar meir aktivt i dette opplegget. Så kunne studentane vore meir klar for arbeid i grupper når dei møter, og få større

utbytte. Tilsvarande, oppsummering etter prosjekt og individuelle arbeid kan gjerast med videoar som ligg ute på nett.

Etter mitt skjøn oppfyller opplegget læringsutbyttet ganske bra. Det er mange element i emnet, og det gir ein god blanding av teori og generelle ferdigheiter. Vi har brukt øvingar i Excel aktivt eit par år, og her får dei lært å bygge og analysere enkle økologiske modellar med rekneark, og dei gjer enkel statistikk med R på data dei har samla inn sjølv. Dei får skrivetrening i ei essayoppgåve med peer review og tilbakemelding frå både assistentar og faglærar.

Muntleg eksamen er krevande, tar mykje tid og det er ikkje så lett å gå tilbake og forklare korfor ein student får ein gitt karakter. På den andre sida gir det god meining med tanke på det diskusjonsformatet som er i klassetida. Det er fornuftig å la dei få ta med seg materiale inn til førebuinga til muntleg eksamen, det stimulerer til å utvikle gode og strukturerte notat.

Øyvind Fiksen

Appendix A Course outline

BIO 201 Ecology Spring 2019

Content

This course is an introduction to basic ecological theory on individual adaptations, population dynamics, and ecosystem structure and functioning. Climate change, life history theory, population growth, competition, predator-prey interactions, distributions in time and space are important topics. We also emphasize quantitative analyses and academic writing as generic skills for ecologists, and the relevance of ecology to society: How should we harvest of natural resources? Which challenges do climate change create for organisms and ecosystems?

Learning outcomes

After completing the course, you should be able to:

1. describe and explain basic ecological theories, concepts and models
2. summarize selected ecological methods used in field and lab and discuss the use of modelling
3. apply some statistical and numerical methods actively to analyze ecological processes
4. identify and explain links between evolution, adaptations and ecosystem functioning
5. discuss relevant, contemporary and applied ecological issues in light of ecological theory
6. write independent texts on ecological themes using a scholarly language and format
7. construct precise illustrations and graphs of data, theories and simulations and draw conclusions from them

General info

First meeting: Tuesday 16th of January, 08:15. Thormøhlens gate 51 (VilVite), Konferanserom A/B. At VilVite, two stairs up.

Class activity: We prefer student-active learning, and the time in class include much group discussions, a mix of individual and group quizzes, and some tutorials related to the group assignments and projects. You will only encounter a few traditional lectures. The exam is oral, so you can think of the activity in class as a preparation for the exam. In addition, it is more engaging and fun to talk and discuss with others than to just sit and listen, and you learn and remember more. Therefore, attend classes and prepare for it by reading the relevant parts of the textbook.

Work in groups: At the beginning of the semester, we split all of you into groups of 5-7 students. You work in these groups throughout the course, in class and with the group projects. Parts of the class activities are preparations for the projects, and you can work with the projects in some of the class time, with supervision from the teachers.

Working with others is an important skill. In fact, employers are looking for collaborative employees, and your ability to function within a group is a key success factor in academic life. In the end of the course, you get an opportunity to rate the contribution from all your group members and this weigh in on the final assessment.

Teachers: Øyvind Fiksen (professor, course leader) and Anders Opdal (post doc).

Required reading: we use the textbook '**Elements of Ecology**' (9th Ed. Global edition, 2015). This book contains all you need to know for this course, and provides a readable overview and introduction to modern ecology. The book is for sale at e.g. Akademika. We estimate you read about 2-3 pages per hour in the book. Chapters included is 1-2, 5-14, 20, 27, about 325 pages in total. All of these are relevant for the oral exam, and some of them for the group projects.

Workload & assessment

Assessment: Oral exam (60%), various individual and group assignments (40%). See the table below for more details. We provide the exact criteria and rubrics for all assessment activities as the course progresses, in MittUiB.

Workload: 266 hours is the standard workload for 10 ECTS. The table below specifies the estimated workload on each learning activity, and its particular weight in the final assessment.

Learning activity	#	Time factor	Hours	Grading weight
Class meetings	16	2,0	32	
Term paper	1	60,0	60	20,0%
Assignments, groups	3	18,0	54	15,0%
Reading the book	325	0,33	108	
Peer review	2	5,0	10	5,0%

Oral exam	1	1,0	1	60,0%
In total			**265**	**100,0%**

Learning activities and outcomes

Class meetings/lectures: We will meet regularly and work our way through the main textbook. You find the schedule for these meetings in the table below. Note that the calendar in MittUiB have more slots (classes) than we actually use, but it is the plan below that is correct. We announce changes or deviations at MittUiB, so make sure you follow the information there.

A central goal of the course is to learn to 'describe and explain basic theories, concepts and models' in ecology. In the oral exam, you have to demonstrate this knowledge, and during class meetings, we will prepare for it through organized group discussions, quizzes and tutorials. Bring your computer or at least a smartphone. It is essential that you read the relevant chapters before class. If you lag behind in your reading – prioritize reading the chapters that are relevant for next class, and return to the backlog later. Learning outcomes developed here: 1, 2, 4, 5.

Group work/computer exercises: The three group assignments involve use of a computer to model populations, life history and ecological processes, most of it using spreadsheets and Excel. The main goal for these assignments is to solve a problem, and present the solution to it in graphs, not to write long essays. Learning outcomes: 3 & 7.

Written assignment and peer-review: You also get training in writing a scholarly text on an applied and contemporary ecological issue. Choose an environmental problem, something related to harvesting, global change, or other themes where ecological reasoning is important. Start thinking about a theme early – you can suggest a theme in MittUiB and receive comments and suggestions from the teachers until 23rd of February, which is the deadline to decide on a topic. We will specify assessment criteria and expectations for the assignment in detail in MittUiB. The expected workload is set to 70 hours for this part. You also have to read and comment on two other student's assignment – and receive comments and feedback from the teachers on both your own assignment and the comments you have received. The peer review is part of the final grading (5%).

One of the core academic values and an inherent element of a scholarly text is to give credits to your sources and earlier work, and to be able to separate own contributions from others. We routinely check all assignments for plagiarism using Ephorus. Remember, plagiarism includes copying text (including translating) word by word from other sources, even if you refer to them. Learn more about this here and watch this. The art of the game is to write well referenced, but *independent* texts – where you develop your own perspective on the topic. Learning outcomes: 5 & 6

Detailed workplan BIO201 2019:

Week	Date	Who	Theme/Textbook chapter
3	17.01	ØF	Introduction. Forming groups. Getting to know each other. Workflow. Making plans. How to learn ecology?
3	18.01	ØF	Ecology as a science. Chapter 1.
4	24.01	ØF	The climate system and ecology. Chapter 2.
4	25.01	ØF	Adaptations. Chapter 5.
5	30.01	ØF	Ecological scientific literature. Critical reading and writing. How to write the term paper.
5	01.02	FM	Adaptations in plants. Chapter 6.
6	06.02	ØF	Life tables. Intro to the group project.
6	09.02	ØF	**Group project 1. Age-structured populations.**
7	13.02	ØF	
7	16.02	ØF	Writing/commenting/reviewing. Stylish academic writing.
8	20.02	ØF	Competition within species. Chapter 11, 12.
8	23.02	ØF	Competition among species. Chapter 12, 13.
8	23.02		**Found a topic or question for the term paper?**
9	27.02		Winter holidays (no teaching)
9	02.03		Winter holidays (no teaching)
10	06.03		Chapter .
10	09.03		No teaching (BIO-party)
11	13.03		Life tables. Chapter 9.
12	20.03		Animals. Chapter 7.
12	23.03		Life history theory. Chapter 10.
13			Easter holiday
13			
14	03.04		No teaching
14	06.04		Life history project intro.

15	10.04		**Group project 2.**
15	13.04		Guest lecture?
16	17.04	ØF	Predation. Chapter 14.
16	20.04	ØF	Predation and harvesting. Intro to group project 3.
17	24.04	ØF	**Group project 3. Population dynamics.**
17	27.04	ØF	Ecosystem energetics. Chapter 20.
18	04.05		Guest lecture?
19	08.05	ØF	Ecology of climate change.
19	11.05		No teaching
20	15.05		**Deadline: Submit Term paper assignment.**
20	18.05		
21	25.05		**Deadline: Submit peer-reviews.**
			28.05-08.06. Oral exams.
	22.06		Final grades

Appendix B Student evaluations

Feedback from own survey (Skjemaker, n = 2)

The 'Active learning room' - how was your learning experience in this room? Would you recommend UiB and other higher ed institutions to invest in more such rooms?	What I liked about the course design, the learning activities, the assessment, feedback, classes, teamwork, learning outcomes, text book etc.	Things that may be changed or improved
It was very useful for group based learning.	The text book provides good overviews and explanations. I have no complaints about the course, except I wish we had something else than just team based learning.	I believe the course would've been better if it wasn't exclusively team based learning, but rather a more varied combination of team based learning and traditional lectures.
I've never tried such room before and it was actually a really good experience. It really improves the learning by more communication between people. The way of sharing results and ideas is facilitated by all the equipments (TV, whiteboard...) and then allows more discussions. It's as well a good room for "shy" people. Instead of having to talk in front of many people in a classic room, they can feel more free to participate in smaller group. I definitely recommend to invest in more such rooms.	Basically everything. It was a new way of learning for me, i'm pretty used to the classic schema (listening the teacher, doing some exercises and then exam) which is quite individual. Here, we got the possibility to test our own knowledges at first by our own (with the quiz) and then to discuss and understand better our mistakes, or some specific points in the book. It's more interactive, we are more involved in the lecture.	Maybe some recap for the complicated points at the end of a lecture as it has been done sometimes. I'm thinking in particular about the chapters 11 to 14 which broach really specific concepts. And finally concerning the peer-review for the term-paper, it would be good to get the paper of someone who didn't get our own paper. Because the papers are not that anonymous (Word > Properties and we can see the name of the author ; the same for the peer-review) and since we can see the feedback immediately when it's published we can feel influence in the feedback we have to give to this person.

Specific feedback from survey from BIO (n=6)

Hva likte du mest med dette emnet?	Hva likte du minst med dette emnet?	Har du forslag til hvordan emnet kan forbedres?	Tilbakemeldinger på studentaktiv undervisning?
Team based learning	Beetles lab		Best thing was that the learning wasn't standard dictations from lecturers but team work

Aktiv læringsform, flink foreleser/emne mansvarlig	Mye arbeid med gruppeprosjekter. Tok mye lenger tid enn forventet	Levere term paper tidligere, for så å få tilbakemelding fra medstudenter, og deretter kunne levere oppgaven en siste gang	Bra synes det fungerer bra så lenge gruppen møter opp.
relevansen til aktuelle problemer	litt tid brukt på forklaring. Dette kan også handle om mangel på respons fra studenter.	en forberedt forklaring på oppgaver som ikke stopper opp for reformulering hele tiden	Kan prøve slik som i 241 hvor noen av timene er obligatoriske, slikat man blir "tvunget" til å bli kjente
Opparbeidet meg god forståelse	Litt mye gruppearbeid. Føler at jeg har gjort alt på egenhånd. Har ikke blitt lært noe, og har vært dårlig med hjelp underveis.. Så det har vært veldig hardt arbeid på meg	Mindre gruppearbeid. Brukte veldig mye tid på gruppeprosjekt, som tok tid bort fra pensumlesing. Det er dessuten vanskelig å få alle til å engasjere seg likt. Fint med grupper til å diskutere.	Spennende!
Å samarbeide med andre medstudenter	Jeg syntes det var dumt at det ikke var så mye gjennomgang at teori. Jeg skulle ønske at læreren gikk gjennom de oppgavene vi har arbeidet med og ikke minst gå gjennom de ulike innleveringene.	Det kan være lurt å gå gjennom de ulike oppgavene slik at man får en slags bekreftelse på om det man har tenkt er rett. Det samme gjelder også for innleveringene. Essayet skulle også ha kommet tidligere i semesteret.	Svært kjekt og lærerikt, men dersom det er et litt vanskelig tema som mange på gruppen sliter med så kan man lett bli frustrert og føle at man ikke skjønner noen ting.