

Biology A1: Correlations between the exam results and evaluations – Reflection on teaching methods and student outcome

Jack Egelund

Department of Molecular Biology, Copenhagen BioCenter, SCIENCE, University of Copenhagen

Introduction

In this project, I have chosen to analyze if there is a correlation between the exam results and the student evaluations. I will keep the main focus on the Plant Biology part of the Biology A1 course (2007), in which I have been involved in development and teaching of the exercises and preparation of the exam questions.

Biology A1: Cell biology – from organism to molecule

The course consists of 21 lectures (1h) and 21 exercises (2h), divided between 3 main teachers of which each have their own speciality. The 3 teachers have further divided their individual part of the teaching on one or more post-docs or PhD students.

The course is obligatory for biochemistry students on their first year (block 1), and together with A2 (the second part of the Biology course) the main objective of the course is to introduce the main principles and key issues of modern biology incl. living organisms' form and function, cell biology, molecular biology and genetics. Furthermore the students should gain basic understanding of concepts, which will enable them to solve biochemical and biological problems related to their education

The A1 part of the course will focus on: the basic anatomy of plants and animals, organs, tissue, the basic structure and functions of cells, organelles

and membranes, the cell cycle and cell division, and the structure of macromolecules. For a complete course description, see Appendix A.

The students are evaluated using a 3h written exam (7-step scale), which is divided equally between the 3 main teachers. An excerpt from the 2007 exam can be found in Appendix B.

Aim of the project

The aim of the project is to investigate if there is any correlation between the exam results and the student evaluations on the Plant Biology part (35%) of the Biology A1 course. The outcome of the analysis will then serve as a tool for reflection upon the teaching methods and exam form, with respect to optimizing the learning outcome from the students. In that regard, I will also take a brief look upon the exam set and comment on its current structure.

Methods

Description of the lectures and exercises

In general the lectures consisted of powerpoint presentations, which more or less would function as a monologue, as the students will get a chance to ask questions during the following exercises. However as I also attended the lectures my impression was that the students really liked the lectures and the way the powerpoint “show” was presented.

With respect to the exercises the students were split in 2 groups of approximately 30 students in each. I designed the exercises together with the other instructor who was teaching the other group. We designed the exercises so the students would get around 1h 15min to complete approximately 25 questions, which more or less corresponded to the exam structure where Plant Biology accounts for 1/3 of the 3h written exam. After the students have completed the questions in small groups (with the possibility of getting help), we would then go through the questions by asking the students for the answers. After they have answered (whether or not it was right) I/we would then go through the questions and answer using powerpoint, and discuss why and how they should have been able to get the right answer. I always found the students to be highly motivated, which made it a lot of fun to teach them.

Description of the written exam 2007

The written exam is divided into 3 parts, which are made separately by each of the 3 main responsible teachers – see below. This also influences the development/design of exam questions, which are quite different between the 3 Plant-, Cell and Animal Biology (a copy of the 2007 exam can be found in Appendix B).

The division of the teaching/exam topics on Biology A1:

- 35% - Plant biology and cell division (Jack & Bill)
- 33% - Cell biology and macromolecules (Martin & Zara)
- 33% - Animal biology and cell functions (Daniel)

The Plant biology and cell division part consist of multiple choice questions and pictures in which the students needs to mark certain features, which do not require the students to formulate their understanding of the problem during the problem-solving phase of the test, meaning that this will typically stimulate a “surface learning approach” (Biggs and Tang; 2007). In comparison, both the Cell biology and macromolecules & Animal biology and cell functions are made up of minor or major essay questions, which forces the students to formulate their understanding in sentences thereby stimulating a “deep learning approach” (Biggs and Tang; 2007). For all three parts the exam questions also reflects the exercises, which the students face in connection with the lectures during the course.

Student evaluation schemes

The idea of the evaluation schemes was primarily to ensure feedback to the teachers with respect to the lectures and exercises, but also a few minor details about *e.g.* course home page can be found. The course evaluations can be found in Appendix D.

The evaluation scheme was created independently of this report and I will therefore have to “pull out” the relevant data and present it in a more illustrative fashion.

Practical implementation of the analysis

In order to analyze if there is a correlation between the exam results and the student evaluations, I will start by looking at how well the students did on the Plant Biology part of the course by plotting the result and number of

students on a graph for a quick and easy overview. Then I will try to extract the most relevant data from the student evaluations in 3 major parts:

Division of the student evaluations used for the analysis:

- General comments – Specific focus on the Plant Biology part.
- The lectures – Plant Biology compared to Animal and Cell Biology.
- The exercises – Plant Biology compared to Animal and Cell Biology.

Based on the above described analysis I will discuss how the correlation between the exam result and student evaluations can be used as a tool for reflection upon teaching methods and student outcome, and present specific suggestions for how to increase the student outcome in the future.

Results

Grades from the 2007 exam: The Plant Biology part

A total of 76 students took the 2007 exam, based on their results I plotted the number of students and pct. correct answers on a graph for a quick and easy overview (Figure 10.1; the original exam results from the Plant Biology part can be found as an excel sheet on Appendix C).

As seen on Figure 10.1, the students did very well on the Plant Biology part of the 2007 exam and only 20 pct. of the students (15 out of 76 students) had less than 50 pct. correct answers (50 pct. dashed line on Figure 10.1). In comparison, 50 pct. of the students (38 out of 76 students) had 75 pct. or more correct answers – 16 pct. of the students (12 out of 76 students) had 90 pct. or more correct answers.

The x-axis represents the number of students and the y-axis represents pct. correct answers. The dashed lines shows the actual level of correct answers, based on the assumption that in a multiple choice test with 25 questions and 5 possible answers in each test, will mean a default level of 5 correct answers. The data is based upon 76 exam sets.

Student evaluations: General comments

Only 13 of the students filled out the evaluation form meaning that the comments should be taken with some caution as this only represents 17 pct. of the students. However I have tried to screen the evaluations for specific issues that has to do with the Plant Biology part – first the positive and then the negative comments (see below).

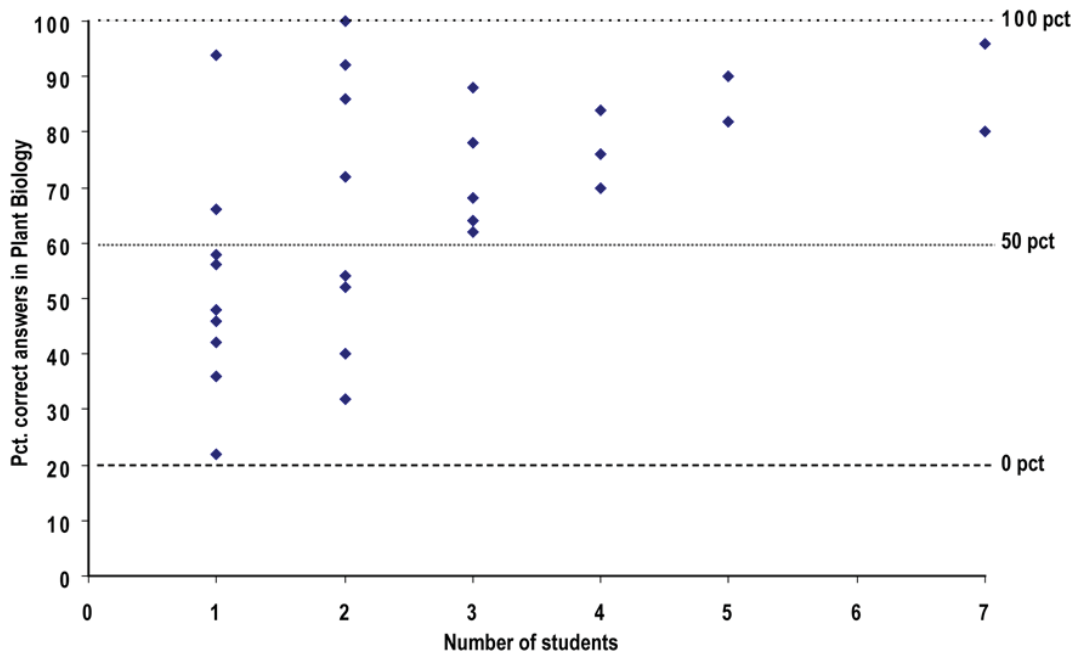


Fig. 10.1. Student scores on the Plant Biology part of the 2007 exam.

Positive comments:

”... Det var godt at få eksempler/paralleller...”

”... Farverige interessante powerpointshows! Det er helt klart et plus!...”

”... Rigtig godt at forelæsningerne forløb ved brugen af et power-point show. Disse har man kunne kigge på senere hen, og så er det også lettere at følge med i forelæsningen, end hvis det foregår med kridt på tavlen. Desuden er det rart at nogle af figurerne fra den læste tekst er med i PP, da man så kunne forholde sig bedre til dem, og forstå det, man ikke havde forstået ved at læse det selv...”

”... Det var godt at det var så nemt at finde en udgave af forelæsningerne til at sætte noter på, og at disse allerede var sat til at have 4 slides per side...”

”... Jeg synes eksaminatorietimerne var rigtig gode...”

”... Rigtig godt når vi fik udleveret spørgsmålsarkene, og så fik tid til at arbejde dem igennem, for til sidst at gennemgå dem ved tavlen...”

”... Dejligt når spørgsmålene er på PP så man kan se dem der, i stedet for der bliver brugt tid på at skrive dem op på tavlen...”

”... Det fungerede markant bedre når en af forelæserne var med i timerne, eller i plantedelen, hvor der var en anden eksaminatorielærer...”

”... Vi har ikke brugte gruppe formen (kun i første eksaminatorium), hvilket jeg synes er rigtig godt, da man får mere ud af at side med hver enkelt spørgsmål selv...”

”... Det er godt med dias, så man ikke bruger tid på at skulle skrive på tavlen...”

”... Bill with other teachers: Meget positivt at spørgsmålene kunne/skulle besvares uden for meget brug af bogen da dette var med til at forberede til eksamen...”

”... gennemgangen flød bedre hos Bill med de andre lærere da svarene blev sat ud på nettet, og vi ikke behøvede bruge tiden på at skrive ned, men kunne diskutere svarene i stedet...”

”... Alle spørgsmål i eksaminatortimerne ledte til en dækkende diskussion/gennemgang af materialet...”

Negative comments:

”... Det var ofte svært at nå igennem alle spørgsmålene. Vi brugte meget tid på de første spørgsmål, og måtte derefter gennemgå de sidste alt for hurtigt...”

”... Det var knapt så vellykket, at man først sad og lavede alle opgaverne i grupper, for derefter at gennemgå det med powerpoint styret af en lærer. Dette fik det hele til at 'gå lidt i stå'...”

”... Jeg synes eksamensformen var underlig/vanskelig. Det var svært at finde ud af hvad der ønskes af en...”

”... Jeg synes det havde været bedre at man enten kørte med multiple choice hele vejen igennem, eller at der var færre spørgsmål og man skulle uddybe mere...”

”... Generelt om spørgsmål (eksamen og eksaminatortimer): De var ikke helt præcist (og enkelt) formulerede og det var ofte svært at gennemskue hvad det egentlig var der var det korrekte svar på spørgsmålet...”

”... Det har været svært at vide hvor meget, og hvor grundigt vi har skullet kunne eksamensstoffet uden ad, det kunne være rart at have en ide om hvordan eksamensniveauet bedømmes, eksempelvis med et besvaret eksamenssæt på nettet med en tilhørende karakter, så man har en ide om hvor meget der er krævet, for nogle af eksamensspørgsmålene lagde op til en overfladisk besvarelse, mens der muligvis var forventet en grundig besvarelse...”

As seen in the above comments the students are in general very pleased with the teaching methods used for Plant Biology, although some find it hard understand the “true” meaning of the questions asked in the exercises/exam. However in order to get a more quantifiable means of analysis of the evaluations I will look more specific on how the students evaluate Plant Biology compared to Animal- and Cell Biology with regards to the teachers, lectures, exercises etc. in the following sections.

Evaluation of the lectures

As part of the evaluation scheme the students were presented with specific questions and were asked to indicate if they thought it was good or bad using a 5 point scale – see below. The average score for each question were then plotted for each of the 3 parts of the course (Plant-, Animal- and Cell Biology), to facilitate a quick and easy analysis of the scores – see Figure 10.2.

The 5 point scale:

- **5**, totally agree
- **4**, agree with some minor disagreements
- **3**, not sure or the question is not relevant
- **2**, disagree
- **1**, totally disagree

As seen on Figure 10.2, the students are in general very positive about the lectures – non of the questions falls below the score of 3. For “The level of the lectures” all 3 parts of the course scores around 4, whereas Plant Biology stand out in the two questions regarding “Are the teachers good at presenting” and “The lectures are understandable” with a score around 4.75, where Animal- and Cell Biology scores around 4 points. For the last questions “The lectures are exciting” both Plant- and Cell Biology scores around 4.5, where Animal Biology scores 4.

The columns represent the 3 different parts of the Biology A1 course (Plant-, Animal- and cell Biology), where the x-axis is the different questions and the y-axis is the average score from the evaluation schemes. The 5 point scale (**5**, totally agree; **4**, agree with some minor disagreements; **3**, not sure or the question is not relevant; **2**, disagree; **1**, totally disagree).

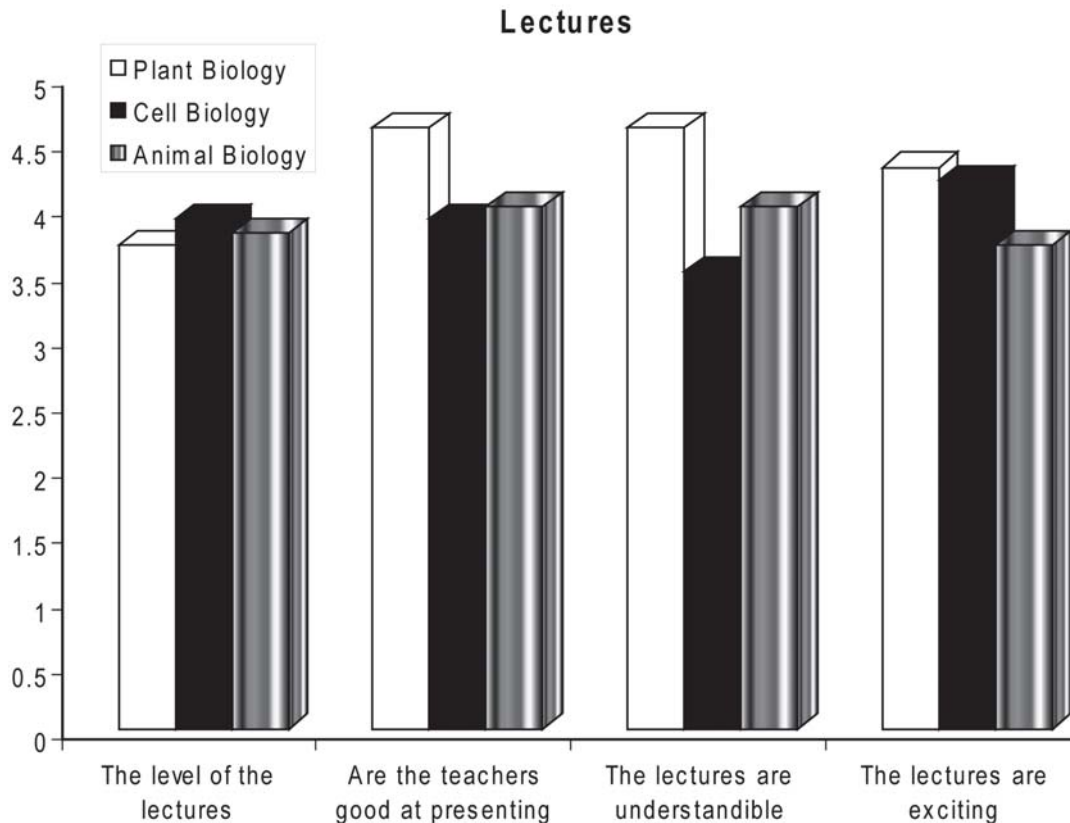


Fig. 10.2. The students evaluation of the lectures

Evaluation of the exercises

As with the evaluation of the lectures the average score for each question regarding the exercises were plotted for each of the 3 parts of the course (Plant-, Animal- and Cell Biology) – see Figure 10.3. The original scores can be found on the evaluations in Appendix C.

With respect to the exercises the students were asked if “The level is to high”. Here Plant Biology scored 3.5, whereas both Animal- and Cell Biology scored 4.5 (Figure 10.3), meaning that the students found the level of the Plant Biology exercises at a suitable level whereas they found Animal- and Cell Biology to be at a bit to high level.

When the students were asked if they thought “The outcome is high”, all three parts of the course (Plant-, Animal- and Cell Biology) scored around 3-3.5, indicating that the students found the outcome to be on an acceptable level – with room for improvements!

The columns represent the 3 different parts of the Biology A1 course (Plant-, Animal- and cell Biology), where the x-axis is the different ques-

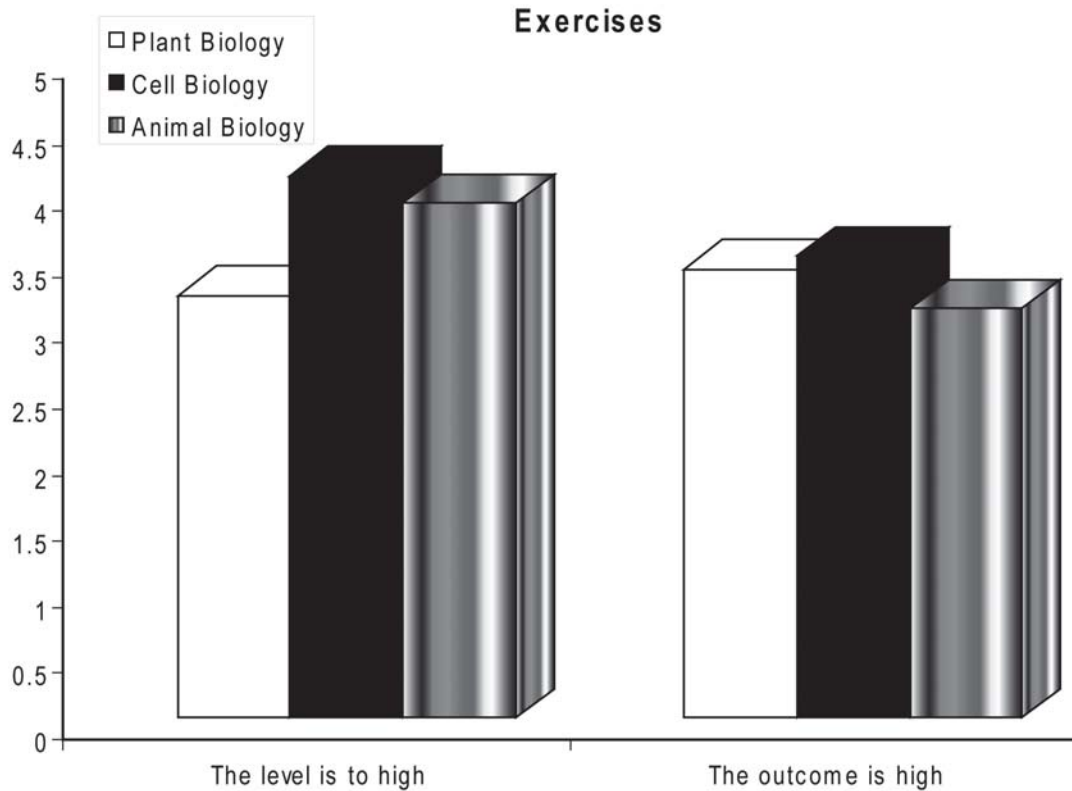


Fig. 10.3. The students evaluation of the exercises

tions and the y-axis is the average score from the evaluation schemes. The 5 point scale (5, totally agree; 4, agree with some minor disagreements; 3, not sure or the question is not relevant; 2, disagree; 1, totally disagree).

Discussion and conclusion

Reflections upon the student evaluations of the lectures

In general it seems that the students are pleased with the lectures for the Plant Biology part of the Biology A1 course. The lectures primarily functions as a monologues from the teacher, however although the students are not “active” during the lectures they still get the basis knowledge needed to follow and actively participate in the exercises, which are always closely aligned with the lectures.

The main reasons that lectures works so well is primarily that the students find the lectures very exciting and relevant, they are kept at a level where the students can understand what is presented, they have easy access

to the student material (*e.g.* lectures which they can print out online – more time for listening instead of writing), and not least that the teacher is highly skilled in presenting.

Although, the students scored Plant Biology highest in 3 of the 4 questions asked in the evaluations scheme (figure 10.2), there are still obviously issues that can be improved to ensure a better learning outcome for the students with regards to the lectures as will be discussed in “How to increase ‘deep learning’ and student outcome”.

Reflections upon the student evaluations of the exercises

The students scored the level on Plant Biology to 3.5 in comparison to 4-4.5 for Animal- and Cell Biology, indicating that they found the level suitable for Plant Biology, whereas Animal- and Cell Biology might be considered a bit too high or difficult for the students. With respect to the exercises the students found the outcome to be more or less equal for Plant-, Animal- and Cell Biology, with a score around 3.5 (figure 10.3), which indicate that there is room for improvements for Plant Biology - but also for Animal- and Cell Biology. The students liked the current model in which the questions were discussed at the exercises, that they do the exercises in small groups, and that they have easy access to the student material online, which they can print out online a couple of days before the exercises, thereby giving them time to prepare. In addition, both the lectures and exercises are constructed so they reflect the exam situation *e.i.* questions presented as they would be for the exam, which helps the students prepare for the real situation at the “green table” – where most of them achieve a high success rate (only 20 pct. of the students have less than 50 pct. correct answers on the Plant Biology part of the 2007 exam, figure 10.1).

Although there were also negative comments *e.g.* lack of time to finish the last questions, badly formulated sentences, it is therefore no surprise that the students are in general very happy with the teaching methods used for the Plant Biology part of the Biology A1 course. However as with the lectures there are still obviously issues that can be improved to ensure a better learning outcome for the students with regards to the exercises and exam questions as will be discussed in the following section.

How to increase “deep learning” and student outcome

In order to increase student outcome, I would suggest that the teacher(s) should introduce “PBL” in the lectures, clear learning goals for each lec-

ture, as well as minor group assignments, and questions to plenum. Such activities will force the students to participate actively in the lectures and thereby making them take a bigger responsibility for their own learning (Biggs and Tang; 2007).

For the exercises and the exam questions it would be an advantage if the multiple choice questions could be discarded and replaced with essay based questions (as is the case for the Animal- and Cell Biology parts, Appendix B, which will force the students to formulate the answers and thereby increasing their learning abilities – again this will force them to take a higher degree of responsibility for their own learning. As shown in a study by Scouller and Prosser (1994), multiple choice questions can be a problem for general “surface learners” which will not be stimulated to become deep learners, whereas the general “deep learners” will remain more or less unaffected in their general study strategy.

In addition, to the exercises minor written projects *e.g.* covering the major topics could be introduced and used in order to give the students formative evaluation, which is known to have a positive effect on the learning outcome (Biggs and Tang; 2007), *e.g.* using good feedback as suggested by Nicol and Macfarlane-Dick (2006), which include that the teacher helps to clearly what good performance is, deliver higher quality of information to the students regarding their learning, encourage dialogue around learning, encourages positive motivation and self-esteem etc.

It is also important to increase the course alignment between Plant-, Animal- and Cell Biology, so the teaching structure, exercises and exam questions are more streamlined. As it is currently, the students don't have the feeling of taking one course, but 3 different independent courses which each have their own teaching methods, and way of formulating questions and evaluating the exam.

The experience I have from the pre-project on KNUD (Gori et al.; 2008) is that if all the issues described above are followed (introducing an active learning environment in both the lectures and exercises). This will motivate the students to become more aware of their own responsibilities in the learning process, which will force them to become “deep learners”, meaning a higher learning outcome.

Using student evaluation schemes as a tool for reflection

For this study, student evaluation schemes were chosen as a tool for reflection upon the teaching methods and student outcome for the Plant Bio-

logy part of Biology A1. One of the main problems was that the evaluation schemes were not made independently of this analysis and therefore the relevant data had to be “pulled” out of the evaluation schemes. Another problem was that only 13 of the 76 students actually filled out the evaluation form, meaning that the comments do not necessarily represent the general meaning on the course. To improve this one might consider either making specific evaluation schemes which would fit the analysis and then ensure that “all” the students filled it out and handed it back *e.g.* by introducing it in one of the exercises. Introduction of focus group interviews as described by Klinke and co-workers and references therein (Klinke et al.; 2005) would also be a good way of getting information from the students, although this type of evaluation of course will require extra preparation and students that are willing to participate.

Conclusion

This project has made it clear to me that there is (and will properly always be!) issues that can be improved, even though the students might have a good success rate at the exam and they generally like the teaching methods on the course. Traditional lectures which primarily function as monologues (more or less) and multiple choice questions for the exercises and exam don't stimulate “deep learning”, and it is therefore important to introduce PBL, clear learning goals for each lecture, minor exercises (with formative assessment/feedback) and essay questions in order to facilitate a better student outcome. This will also help on the general course alignment so the students will “feel” it as one coherent course instead of 3 minor independent parts.

A Appendix: Biology A1: Course Description

Biologi A1: Cellebiologi - Fra organisme til molekyle



Udgave: Efterår 2007 NAT
Point: 7,5
Blokstruktur: 1. blok
Skemagrube: B
Semester: 1. år, blok 1
Varighed: 7 uger

Omfang: 21 timers forelæsninger og 42 øvesestimer
Institutter: Institut for Molekylær Biologi
Uddannelsesdel: Bachelor niveau

Kontaktpersoner: Martin Berchtold, mabe@my.molbio.ku.dk, 3532 2089

Skema oplysninger: Vær opmærksom på, at der i kurset findes både forelæsninger og øvelses timer. Se oplysninger om undervisningstidspunkt for øvelses timer herunder. Se oplysninger om undervisningstidspunkt for forelæsninger via linket under "tid og sted". Hvilket undervisningshold du er på til øvelses timerne, vil fremgå på selvbetjeningen på punkt.ku. sidst i uge 34. Til forelæsninger undervises alle studerende sammen.

Lectures:

Tirsdag 9.00-10.00 på HCØ Aud 1
 Tirsdag 13.00-14.00 på HCØ Aud 1
 Fredag 9.00-10.00 på HCØ Aud 2

Eksaminatorie:

Hold 1:

Tirsdag kl. 10-12 på Biocentret i 4-0-32
 Tirsdag kl. 14.00-16.00 på Biocentret i 4-0-32
 Fredag kl. 10.00-12.00 på Biocentret i 4-0-32

Hold 2:

Tirsdag kl. 10.00-12.00 på August Krogh i Aud 3
 Tirsdag kl. 14.00-16.00 på Biocentret i 4-0-24 (den 9. oktober på August Krogh i Aud. 3)
 Fredag kl. 10-12 på August Krogh i Aud 2 (den 28. september er på Biocentret i 1-2-03)

Skema oplysninger:

[blok 1](#)
 Samlet [oversigt](#) over tid og sted for alle kurser inden for Lektionsplan for Det Naturvidenskabelige Fakultet Efterår 2007 NAT

Formål:

Det samlede formål for de to Biologi A kurser (A1 og A2) er at give en introduktion til principper og centrale emner inden for moderne biologi herunder en indføring i levende organismers form og funktion, cellebiologi, molekylærbiologi og genetik. Kurserne sigter desuden på at give studenten et basalt biologisk og biokemisk begrebsapparat, der skal muliggøre det senere arbejde med biokemiske og biologiske problemstillinger under biokemistudiet.

Indhold:

Biologi A1 kurset vil være fokuseret på organismers (planters og dyrs) grundlæggende anatomi og fysiologi og deres organer, væv, cellers grundlæggende struktur og funktion, på organeller og membraner, på celleyklus og celledeling samt makromolekylers opbygning.

Målbeskrivelse:

1. Studenten skal opnå en forståelse af de nedenfor skitserede emner på niveau med det anbefalede kursusmateriale. Studenten skal kunne demonstrere denne forståelse ved opgaveløsning blandt andet ved hjælp af illustrationer.
2. Kunne beskrive tilpasning af dyr og planters anatomi og fysiologi til miljø og fysiske udfordringer/love. Kunne beskrive konvergent evolution og hvordan specifikke tilpasninger belyser evolutionsprocessen

3. Kunne beskrive den hierakiske opbygning af liv – makromolekyler/organeller/celletepe/væv/organ/organsystem.
4. Kunne beskrive homeostase i biologiske systemer via feedbacksystemer og intercellulær kommunikation, herunder hvordan dyr og planter responderer på ændringer i miljøet.
5. Studenten skal opnå et biologisk og biokemisk begrebsapparat på et niveau så studenten kan forstå og redegøre for centrale emner indenfor ernæring, cellulær respiration, fotosyntese, kredsløb, gastransport, osmoregulering, mitose, meiose, cellulær kommunikation, celle cyklus og reproduktion.
6. Studenten skal være i stand til at forklare måder, hvorpå planter påvirker menneskers liv.
7. Studenten skal være i stand til at forklare hvordan planter udvikler sig (plasticitet, samt determineret og ikke-determineret vækst).
8. Studenten skal være i stand til at vurdere og koordinere viden fra de forskellige emner gennemgået i kurset.

Lærebøger:

Campbell/Reece, 7th edition

Tilmelding:

Studerende optaget på biokemi september 2007 er automatisk tilmeldt kurset
For studerende optaget før september 2007 er der kursustilmelding på [selvbetjeningen](#) i perioden 1-10. juni 2007.

Eksamensform:


3 timers skriftlig eksamen uden hjælpemidler. Intern censur. karakter efter den 7 trin skalaen

Eksamen:

Skriftlig prøve den 2. november 2007.
Reeksamen: Skriftlig prøve den 1. februar 2008.

Kursus

hjemmeside:

 Kursushjemmesiden administreres af: [Se liste](#)

Bemærkninger:

Kan være på dansk, hvis ingen udenlandske studerende er tilmeldt.

Undervisnings

sprog:

Engelsk

Sidst redigeret:

19/9-2007

B Appendix: Example of exam questions

Besvarelsen ønskes på opgavesættet.

13. Celle cyklus består af flere forskellige faser. Disse faser foregår altid i samme rækkefølge. Hvilken en af nedenstående udsagn er rigtig?

- 1) G1;G2;S;M
- 2) G1;S;G2;M
- 3) G0;G1;G2;S
- 4) M;G2;S;G1
- 5) M;G2;G1;S

14. M fasen i mitosen er opdelt i flere forskellige faser. Disse faser foregår altid i den samme rækkefølge. Hvilken en af nedenstående udsagn er rigtig?

- 1) Prophase; Prometaphase; Metaphase; Anaphase; Telophase og Cytokinesis
- 2) Prophase; Metaphase; Prometaphase; Anaphase; Telophase og Cytokinesis
- 3) Prophase; Prometaphase; Anaphase; Metaphase; Telophase og Cytokinesis
- 4) Metaphase; Prophase; Prometaphase; Anaphase; Telophase og Cytokinesis
- 5) Prometaphase; Prophase; Metaphase; Anaphase; Telophase og Cytokinesis

15. I løbet af cellecyklus fasthæfter spindlet microtubuler til chromatiderne i strukturer kaldet?

- 1) Kinetochores
- 2) Centrochores
- 3) Centromeres
- 4) Centrosomes
- 5) Spindle bodies

16. Mitosen er ens i både planter og dyrceller, men planteceller skal også danne en ny cellevæg. Dannelsen af denne cellevæg starter med produktionen af en struktur der hedder?

- 1) Cell plate
- 2) Mitotic plate
- 3) Wall plate
- 4) Cytokinetic plate
- 5) Wall spindle

C Appendix: Exam results from Plant Biology

Eksamens Antal rigti g pct.		
1	21	84
2		
3	10.5	42
4	17.5	70
5	19	76
6		
7	18	72
8	19	76
9		
10		
11	17	68
12	22.5	90
13	22	88
14	14.5	58
15		
16	10	40
17	17.5	70
18	20	80
19	19	76
20	17	68
21	16.5	66
22		
23	22	88
24	12	48
25	10	40
26	19	76
27		
28	24	96
29	20	80
30	20.5	82
31	17.5	70
32	20.5	82
33	22.5	90
34	19.5	78
35	16	64
36	15.5	62
37	25	100
38	19.5	78
39	24	96
40		
41	14	56
42	20	80
43	5.5	22
44	20.5	82
45	11.5	46
46	13.5	54
47	22.5	90
48	24	96
49	15.5	62
50	22	88
51		

Eksamens Antal rigti g pct.		
52	17.5	70
53	18	72
54	23	92
55	25	100
56		
57	20.5	82
58	22.5	90
59	13	52
60		
61	24	96
62	21	84
63	23	92
64	20	80
65	20.5	82
66	17	68
67	24	96
68	8	32
69		
70		
71	19	76
72		
73	21.5	86
74	22.5	90
75		
76	20	80
77	21.5	86
78	15.5	62
79	23.5	94
80	21	84
81	24	96
82		
83		
84	20	80
85	9	36
86	13.5	54
87	16	64
88	24	96
89	21	84
90	13	52
91	20	80
92	16	64
93	19.5	78
94	8	32

Eksamen i Biologi A1 for Biokemistuderende
 Fredag den 2. november 2007
 Eksaminator: William George Tycho Willats
 Del 1 (vægt 35%)

D Appendix: Course evaluation scheme

Evaluering af Biologi A1

Undervisning i blok 1, efteråret 2007

Formålet med evalueringen er først og fremmest at give underviserne feedback på deres undervisning. Din besvarelse af skemaet vil ikke nødvendigvis få betydning for dig selv, men vil være af betydning for underviserne - og for de fremtidige studerende. Vi beder dig derfor om at forholde dig nøgternt til besvarelsen og prøve at se bort fra personlige sym- eller antipatier.

Såfremt du har deltaget for lidt i undervisningen til på et rimeligt grundlag at kunne besvare skemaet, bedes du sætte kryds her og undlade at udfylde skemaet.

[] Jeg har ikke deltaget tilstrækkeligt i undervisningen til på et rimeligt grundlag at kunne besvare skemaet.

Når der angives svarmulighederne 5 til 1 udfyldes skemaet ved at sætte en ring rundt om tallet der svarer til det udsagn, der mest præcist giver udtryk for dit synspunkt. Du er selvfølgelig velkommen til at skrive kommentarer i forbindelse med alle spørgsmål.

- 5 betyder at du er helt enig
- 4 betyder at du er enig med forbehold
- 3 betyder at du ikke er sikker, eller at udsagnet ikke er relevant
- 2 betyder at du er uenig
- 1 betyder at du er helt uenig

GENERELT

Undervisning på dette kursus forløber hovedsageligt top-down, men med introduktion af makromolekyler i midten af kurset. Hensigten hermed er give et biologisk overblik i starten og herefter gå mere i detaljen for at se hvordan forskellige organismer er tilpasset strukturelt, og fysiologisk.

- | | |
|---|------------------|
| 1 Top-down forløbet er fordelagtigt | 5 4 <u>3</u> 2 1 |
| 2 Vi har fokuseret på de rigtige emner i undervisningen | 5 <u>4</u> 3 2 1 |

FORELÆSNINGER

- | | |
|--|-------------------------|
| 3 Antallet af forelæsningsstimer er højt | 5 4 <u>3</u> 2 1 |
| 4 Sværhedsgraden/niveauet af forelæsningerne er højt | Bill 5 <u>4</u> 3 2 1 |
| | Martin 5 <u>4</u> 3 2 1 |
| | Daniel 5 <u>4</u> 3 2 1 |
| 5 Forelæserne er gode til at formidle stoffet | Bill <u>5</u> 4 3 2 1 |
| | Martin 5 <u>4</u> 3 2 1 |
| | Daniel 5 <u>4</u> 3 2 1 |
| 6 Forelæsninger er nemme at forstå | Bill <u>5</u> 4 3 2 1 |
| | Martin 5 <u>4</u> 3 2 1 |
| | Daniel 5 4 <u>3</u> 2 1 |
| 7 Forelæsningerne er spændende | Bill <u>5</u> 4 3 2 1 |
| | Martin <u>5</u> 4 3 2 1 |
| | Daniel 5 4 <u>3</u> 2 1 |
| 8 Forelæsningerne går meget udenfor pensum | Bill 5 4 3 <u>2</u> 1 |
| | Martin 5 <u>4</u> 3 2 1 |
| | Daniel 5 <u>4</u> 3 2 1 |
| 9 Hvad var godt/ikke godt ved forelæsningerne – andre kommentarer? | |

Det var godt at få eksempler/paralleller! Der kan arbejdes på formidlingen i Daniels forelæsninger. De blev nemt for monotone hvilket fik mig til at miste fokus. Til gengæld var forelæsninger generelt præget af farverige interessante powerpointshows! Det er helt klart et plus!

EKSAMINATORIER

10 Antallet af eksaminatorietimer er højt 5 4 3 2 1

11 Sværhedsgraden/niveaue af eksaminatorierne er højt

Zara	<u>5</u>	4	3	2	1
Sofia	5	<u>4</u>	3	2	1
Bill with other teachers	5	4	3	<u>2</u>	1

12 Udbyttet af eksaminatorietimerne er højt

Zara	5	4	<u>3</u>	2	1
Sofia	5	4	<u>3</u>	2	1
Bill with other teachers	5	4	3	<u>2</u>	1

13 Eksaminatorieformen med gruppernes præsentation ved tavlen er en god måde at sætte sig ind i stoffet på og formidle til de øvrige 5 4 3 2 1

14 Hvad var godt/ikke godt ved eksaminatorierne – andre kommentarer?

*Der var højt engagement fra Zara hvilket var motiverende! Og hun var god mod os på de onde onsdage ☺(kage)
Til gengæld havde hun engang imellem svært ved at være på samme niveau som mig – hendes sprog var tit for kompliceret til at jeg forstod det. Hun var god til at stille spørgsmål og få uddybet mange ting – til gengæld afbrød hun tit folk inden de havde svaret færdigt.
Jeg fik aldrig rigtig noget indtryk af den anden lære. Han virkede lidt umotiveret!*

15 Hvis du ikke deltog i eksaminatorierne var det så på grund af eksaminatorieformen – forklar gerne?

UNDERVISNINGSMATERIALE OG KURSUSHJEMMESIDE

16 Det er fordelagtigt at powerpoint præsentationerne er tilgængelige på nettet 5 4 3 2 1

17 Det fungerer fint at hente opgaver og forelæsninger fra kursushjemmesiden 5 4 3 2 1

18 Har du kommentarer vedr. kursushjemmesiden

Det ville være rart at have powerpoints liggende både i pdf format og powerpoint format

ØVRIGE KOMMENTARER

19 I dette kursus er det altid nemt at finde ud af, hvilke forventninger der er til ens arbejdsindsats 5 4 3 2 1

20 Underviseren på dette kursus motiverer de studerende til at gøre deres bedste 5 4 3 2 1

21 Arbejdsbyrden i dette kursus er for stor	5	4	<u>3</u>	2	1
22 Underviseren bestræber sig virkelig på at forstå de vanskeligheder, de studerende kan have med stoffet	5	<u>4</u>	3	2	1
23 Underviseren anstrenger sig virkelig for at gøre emnerne interessante for de studerende	5	4	3	<u>2</u>	1
24 Har du kommentarer til undervisningslokalerne? – <i>de var fine</i>					
25 Har du andre kommentarer til Biologi A1? – <i>jeg synes eksamensformen var underlig/vanskelig. Det var svært at finde ud af hvad der ønskes af en. Jeg synes det havde været bedre at man entet kørte med multiple choice hele vejen igennem, eller at der var færre spørgsmål og man skulle uddybe mere. Generelt om spørgsmål (eksamen og eksaminatorietimer): De var ikke helt præcist (og enkelt) formulerede og det var ofte svært at gennemskue hvad det egentlig var der var det korrekte svar på spørgsmålet. – dog skal det siges at alle spørgsmål i eksaminatorietimerne ledte til en dækkende diskussion/gennemgang af materialet(måske netop når de var uspecifikke).</i>					

All contributions to this volume can be found at:

http://www.ind.ku.dk/publikationer/up_projekter/2008-1/

The bibliography can be found at:

http://www.ind.ku.dk/publikationer/up_projekter/kapitler/2008_vol1_bibliography.pdf/