

EMNERAPPORT – INSTITUTT FOR BIOMEDISIN

ANNUAL EVALUATION REPORT – DEPARTMENT OF BIOMEDICINE

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| Emnekode: <i>COURSE CODE:</i> | BMED360 | Semester / år: | Spring 2016 |
| Emnenavn: <i>COURSE NAME:</i> | <i>In Vivo Imaging and Physiological Modelling</i> | SEMESTER / YEAR: | |
| Emneansvarlig: <i>COURSE COORDINATOR:</i> | Arvid Lundervold | Godkjent: <i>APPROVED:</i> (admin.) | Undervisningsmøte IBM 17.08.2016 |
| Rapporteringsdato: <i>DATE OF REPORT:</i> | 20.07.2016 | | |

INNLEDNING / INTRODUCTION:

Kort beskrivelse av emnet, inkl. studieprogramtilhørighet. Kommentarer om evt. oppfølging av tidligere evalueringer.

SHORT COURSE DESCRIPTION, INCLUDING WHICH STUDENTS/CANDIDATES MAY ATTEND. COMMENTS TO CHANGES BASED ON PRIOR EVALUATIONS.

In Vivo Imaging and Physiological Modelling (10 ECTS) is a course mainly offered to students with a background in physics, computer science, mathematics or statistics, on bachelor level. The course is also among courses offered for PhD candidates attending the Norwegian Research School in Medical Imaging, <http://www.ntnu.edu/medicalimaging>

The goal of the course is that the participants shall obtain theoretical and practical knowledge on functional and quantitative in vivo imaging in man and animal using magnetic resonance imaging (MRI) and computer-based image analysis.

6 students were registered for the course this semester, among them 2 Medical students at the Medical Student Research Programme (MEDFORSKL) at The Faculty of Medicine and Dentistry, 2 visiting students from Spain and France through international agreements with The Faculty of Mathematics and Natural Sciences, 1 Master student in Biology (MAMN-BIO) and 1 visiting PhD physics student (clinical and molecular oncology) from the University of Oslo.

For course descriptions, visit <http://uib.no/course/BMED360>

STATISTIKK / STATISTICS (admin.):

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| Antall vurderingsmeldte studenter: <i>NUMBER OF CANDIDATES REGISTERED FOR EXAMINATION:</i> | | 6 | | Antall studenter møtt til eksamen: <i>NUMBER OF CANDIDATES ATTENDED EXAMINATION:</i> | | | 5 | |
| Karakterskala GRADING SCALE | «A-F» | A: | B: | C: | D: | E: | F: | |
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KOMMENTARER TIL KARAKTERFORDELINGEN / COMMENTS TO THE STATISTICS:

Emnerapporten utarbeides når sensuren etter ordinær eksamen i emnet er klar. For muntlige eksamener er da resultatfordelingen endelig, men for skriftlige eksamener kan endelig resultatfordeling avvike noe om evt. klagebehandling ikke er fullført.

THIS REPORT IS PREPARED AFTER ORDINARY EXAMINATION. FOR ORAL EXAMS, THE RESULTS ARE FINAL, FOR WRITTEN EXAMS, THE FINAL GRADING DISTRIBUTION MAY DIFFER SLIGHTLY IF CANDIDATE COMPLAINTS/APPEALS HAVE NOT BEEN PROCESSED.

Several students in the course this semester had very good background and were rather skilled in MR imaging and/or MATLAB programming, being reflected in the distribution of grades towards As and Bs.

The final grade is based upon an oral presentation of a personal project (80%) in combination with a MCQ / Quiz test (20%). In order to pass, the students also have to get approved a midterm assignment "The kiwifruit segmentation challenge".

SAMMENDRAG AV STUDENTENE SINE TILBAKEMELDINGER / SUMMARY OF EVALUATIONS GIVEN BY THE STUDENTS

Spørreundersøkelse via Mitt UiB, annen evaluering, tilbakemelding fra tillitsvalgte og/eller andre.

COURSE EVALUATION ON MY SPACE, OTHER EVALUATIONS, RESPONSES FROM THE STUDENT REPRESENTATIVES AND/OR OTHERS.

Only 2 of the attendees gave their feedback through the evaluation quiz at My UiB.

In short: Very dense course, material for preparation should be available before the course (even YouTube videos were suggested); MC/Quiz examples could be available before the test; Extend the first teaching block from 2 weeks to 2 ½ week (less lectures/topics per day); Reconsider the textbook by Tofts (partly too technical for beginners in MRI)

EMNEANSVARLIG SIN EVALUERING OG VURDERING / EVALUATION AND COMMENTS BY COURSE COORDINATOR:

Faglæreres vurderinger av emnet. *TEACHER COMMENTS.*

Eksempel: Kommentarer om praktisk gjennomføring, undervisnings- og vurderingsformer, evt. endringer underveis, studieinformasjon på nett og Mitt UiB, litteraturløst, samt lokaler og utstyr.

EXAMPLE: COMMENTS ABOUT PRACTICAL IMPLEMENTATION, TEACHING AND ASSESSMENT METHODS, IF NECESSARY. FUTURE CHANGES/CHANGES IN PROGRESS, STUDY INFORMATION ON THE INTERNET AND MY SPACE, LITERATURE ACCESS, LOCALES AND EQUIPMENT.

The course is both untraditional (very broad, very dense, in between faculties), challenging to give, and attractive to students from quite different disciplines. It brings together topics from mathematics, physics, computer science, biology and medicine focusing on how to extract quantitative anatomical and physiological information from in vivo imaging in time and space using modelling and computational approaches. The interdisciplinary design and selected topics seems to be increasingly important, and future challenges relates to (i) teacher resources, their background and motivation (include teachers / guest lecturers from other faculties / institutions); (ii) how to adapt new material / interface to similar (possibly upcoming) courses related to systems biology and systems medicine and bioinformatics, and also reduce topics that are not fitting well; (iii) make distinction between PhD and MSc level within the course and in the assessment; (iii) make use of modern tools for e-learning, assessment, and recruitment, and tools that support efficient learning where lectures / introduction of new topics is very densely packed (2 + 1 week).

To meet these challenges, we have started to plan and design selected e-learning modules for the course (see below).

MÅL FOR NESTE UNDERVISNINGSPERIODE – FORBEDRINGSTILTAK / PLANNED CHANGES FOR THE NEXT TEACHING PERIOD – HOW TO BE BETTER:

We are about to design and introduce e-learning modules, supporting learning of selected topics in the course (e.g. basic principles of MRI, MATLAB, statistical tissue classification, pharmacokinetics and compartment modeling, fiber tracking and brain connectivity). For the production of such e-learning modules, to be hosted on a scalable and accessible Open edX platform (beta.akademix.no), we have got some funding from the Norwegian Research School in Medical Imaging.

This will make it easier for both UiB and external students to prepare for the course, study and keep in contact with the material independent of lecturing hours, and also as a source of information after the course has finished. Some of the modules can also be used as a supplement in other courses (also research schools) and for other groups of students.