Biofabbing & Ecology - Introduction to biology, ecology and digital fabrication

About the course

subject	Den Naturvidenskabelige Bacheloruddannelse
Activity type	Optional courses
Teaching language	English
Registration	THE COURSE IS CANCELLED SUMMER 2018. For International students through your local international office. Questions regarding registration can be directed to natbach-studieadministration@ruc.dk
Academic prerequisites	Stand-alone course with no course requirements. Selected prestudy materials will be provided, and we expect you to study this before course starts.
Foreign language reading proficiency	English
Course order	The course will be held from June 18 to July 6 2018 (both days included). All work days in the period from 9 am to 4 pm (with lunch break). Evening programs during the fieldtrip.
Overall content	The aim of this course is that the students gain general knowledge about biology & ecosystems, and an introduction to digital fabrication and maker skills. The course covers: • What is life on a chemical, structural and ecosytem level. • Central physical and chemical factors, nutrients and mass balances in ecosystems • The major organisms, their mutual interaction and their interaction with the environment. • Collection of environmental data. • Cultivation of samples & organisms. • Performing test and experiments in the environment or with samples obtained in the environment.
Detailed description of content	At this course you'll get a hands-on introduction to biology and ecosystems. We will look at the abiotic components, the primary production, energy generation and conversion. Look at how you measure these parameters and grow different organisms from bacteria, fungy, algae to small animals and plants. We will learn about standard methodologies to analyse the environment and observe cells and microbes. It's an intense workshop where participants and teachers will work hard, and we expect you to make an effort for the learning and fun of everybody.
Teaching and working methods	The students will gain this knowledge and expertise through: • Self study, reading and lectures. • Problem based teamwork, collaboration and peer-learning. • Applying academic skills in the real world through hands-on testing, interaction and experiences. • Rapid prototyping of interventions, test and experiments. • Integrating the knowledge by modifying and building devices that can be used for environmental data collections, observations, or demonstrating scientific, artistic or design oriented concepts. The students will further be introduced to: • How to program an Arduino microcontroller, sensors, actuators and measuring the real world. • Laser cutting and other maker skills.
Expected work effort (ECTS-declaration)	5 ECTS
Course material and Reading list	Course materials will be provided before the course start.
Form of examination	It's a full time course and students are required to be present and participate actively in the course. The students will be working in small groups with a project with an experimental design. During the course there will be small hand-in assignments supporting the project work. The projects will be presented and discussed at the end of the course. In order to pass it is required to be present at least 85 % of the course and to contribute to all parts for the work including the oral presentation of the project.

Form of re-examination	Classes, which include practical exercises and fieldwork, cannot be replaced by another exam. The above examination can therefore not be replaced by a re-examination.
Examination type	Individual examination
Assessment	Pass / No pass
Moderation	None (i.e. course lecturer assesses)
Evaluation- and feedback forms	All courses include formative evaluation during the course based on dialogue between the students and the teacher(s). All courses are also evaluated through a questionnaire in SurveyXact and oral evaluation at the end of the course. The Study Board will handle all evaluations along with any comments from the course responsible teacher.
Responsible for the activity	Gary Thomas Banta (banta@ruc.dk) Malthe Martin Borch (mmborch@ruc.dk)
teacher	Malthe Martin Borch (mmborch@ruc.dk)
Administration of exams	INM Studieadministration (inm-studieadministration@ruc.dk) INM Studyadministration (inm-studyadministration@ruc.dk)
STADS stamdata	Valgfrit kursus workload : 5 ECTS activitycode : U26720 exam form : Tilfr. deltagelse (ua) grading : Passed/Not passed censorship : ingen censur

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