

InTerAct News

Students, Academia and Industry collaboration

The international AQFood master programme Aquatic Food Production - Quality and Safety was launched in September 2012. This second issue of the InTerAct newsletter is dedicated to interaction with students in the first semester, development of web courses for the aquatic food industries and collaboration with the Nordic Innovation Marine Marketing Program, AQUATNET and the Icelandic Ocean Cluster.



*Participants in the Nordic Innovation Marine Marketing Program workshop in the Faroes.
Contact: Andreas Petterson (SLU)*

ISSUE 2

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AQFood new e-learning courses

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2. Aquatic Food Processing and Technology
3. Safety and Human Health Effects of Aquatic Food
4. Aquatic Food Supply Chain Management, Environment and Resources

Upcoming Actions

On-line survey among students
Results of stakeholder interviews
Image building for education and carrier opportunities in the aquatic food value chain

Nordic students in the Faroes helping the marine sector

"In order for a waiter at a restaurant to inform their customers in detail about the origins of the meal they will have – what needs to be done in both the aquaculture and marine industry and could it be of any value for the customer?"

This is the challenge that 18 Nordic university students approached during a 32 hours long workshop in the Faroe Islands in November 2012. The students worked in three teams, which each placed itself somewhere in the marine sector's value chain. The goal was to build a business for a company that creates an added value out of traceability.

The winning solution, **Nordic Fish Trade**, presented a new and innovative way of how traceable data could be collected, processed and traced within the value chain of marine industry. The solution involved creating a user-friendly information gateway for consumers to be able to trace marine related products.

The workshop Nordic Innovation Marine Marketing Program (NIMMP) was designed in collaboration with Nordic companies in the marine sector where the challenge of traceability is a real issue that companies are currently dealing with. The result of the workshop and experience are considered important for both the industry and the students participating.

The findings of the workshop will be displayed in a promotional video and gathered in a report that will aid companies in the sector to come up with innovative solutions. The objective of the video is to increase the number of young people applying for educational programs and jobs within the marine sector.

The project is funded by the Nordic Innovation and is a joint venture of Innovit Entrepreneurship centre in Iceland, University of Faroe Islands, Stardust CBS in Denmark, Norwegian University of Life Sciences, Swedish University of Agricultural Science.

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In-depth discussions between students during the NIMMP workshop



Students working on traceability solutions for the value chain of the marine industries

Academia needs to adapt to innovative teaching methods

The AQFood is linked to the AQUATNET consortium (www.aquatnet.com). They have performed a survey in connection with European Master Programmes on innovation in teaching & learning. Teachers stated, that a major driver for change in teaching methods and use of innovative tools, is learning from peers. "These particularly concern the potential synergies between college and life-long learning; the use of case studies and problem-based learning; and the increasing demand for personalized and on-demand learning for the sector". More flexible models for collaboration will help to accelerate innovation within the sector. The aim is also to develop guidelines for more uniformity among programmes, e.g. overall terminology, student placements and thesis protocols, as well as ensuring interaction with stakeholders to identify course needs and facilitate their implementation by use of ICT tools.

For further information contact: Odd-Ivar Lekang, UMB (Norwegian University of Life Sciences)

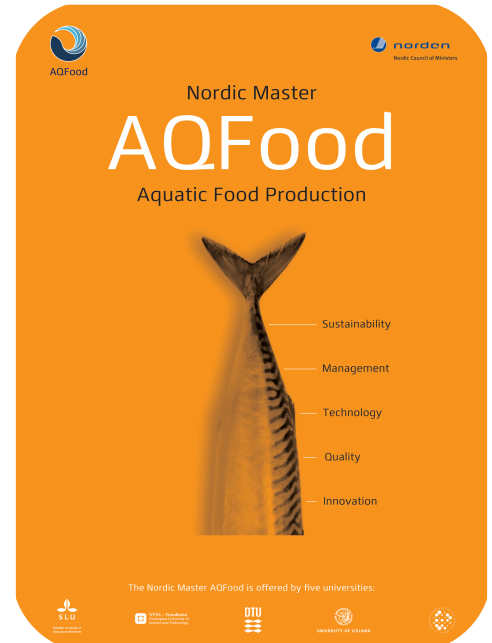
AQFood uses a common learning platform, a pioneer project

The first semester of the AQFood master program is common for all students independent of where they stay i.e. in Denmark (DTU) or Norway (UMB) or NTNU). The following e-learning courses are mandatory in AQFood but they were also offered as elective courses for local students at DTU, NTNU and UMB

- Primary production, Aquaculture and Fisheries
- Aquatic Food Processing and Technology
- Safety and Human Health Effects of Aquatic Food
- Aquatic Food Supply Chain Management, Environment and Resources

The launching of AQFood was a real trial to use a common internet based learning platform Fronter, which was hosted by UMB. The platform compiles lecturing material for all courses including links to the recorded lectures, pdf of powerpoint files from lectures, additional info that the students should read and informative links. The students can also upload various assignments, exercises and project thesis electronically on this platform. Student tests can be performed online using the tools in the platform.


There is a great advantage of using such a common platform. The students in different schools can use one platform tool, and do not need to adapt to other tools in the universities where they are staying. For the teachers of the courses given by different schools the advantage is that they can at any time look into the platform and get updated on what has been lectured in the other courses in the common first semester. Cooperation between the four core courses is in this way also enhanced.



AQFood is a higher education programme for students with BS in engineering or natural sciences who are interested in innovation and sustainability, and quality and safety of health promoting aquatic food

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Technical University of Denmark (DTU), Norwegian University of Science and Technology (NTNU), Norwegian University of Life Science (UMB), Swedish University of Agricultural Sciences (SLU), University of Iceland HI(UOI).




Aquatic Food Production
Nordic Master

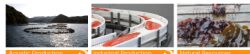
exam questions
Les mer Slett Endre

exam 19/12 kl 09.00-12.00
Les mer Slett Endre

Delivery of project thesis 9 of desemeber on fronter
Les mer Slett Endre



OVER TILBUD



Technical University of Denmark (DTU), Norwegian University of Science and Technology (NTNU), Norwegian University of Life Science (UMB), Swedish University of Agricultural Sciences (SLU), University of Iceland HI(UOI).

By using such a common learning platform the students in the AQFood master programme also get a class feeling, even if they are located on different campuses, a virtual classroom is created. It is also easy for teachers to communicate with students and for students to communicate with each other. Students' group work can also be performed while students are sitting in different countries.

AQFood: New web course in Primary production, Aquaculture and Fisheries at UMB

During the autumn semester 2012 the students enrolled in the AQFood (international double degree master program) and Aquaculture (master program at UMB) have followed an e-learning master course in Primary production, Aquaculture and Fisheries. The aim of the course is to give the students the necessary basic information about fisheries and aquaculture, so that the students are able to critically evaluate the factors which are important for a sustainable growth in the industry. Student who has met the objectives of the course will be able to: - discuss advantages and disadvantages of the two aquatic food primary production systems, fishery and aquaculture - discuss important factors for operating a sustainable fishery and a sustainable aquaculture. Topics included for example: fisheries operation and fishing gears, aquaculture production highlighting water quality, feed, breeding and diseases, sustainability, fish welfare and interactions of aquaculture and wild fish populations.

The course is given as a joint course between UMB and SLU, and in total has over ten different experts giving lectures within their knowledge area, also including a professor from Norwegian school of veterinary science. Some students have watched the lectures on line but all the lectures were taped and made available on the learning platform. It is therefore available for students to watch whenever it fits into their schedule. Every week an on-line discussion session has been offered to the students, and they have presented their relevant assignments for the week's topic. Different tools have been used for taping



The course gives students the necessary basic information about fisheries and aquaculture and understanding of the factors that are important for sustainable growth of the industries

lectures and for online broadcasting. For online broadcasting the tools Adobe Connect and AT & T Connect have been applied and for recording lectures Camtasia Relay have also been used. Electronic blackboard has also been used in the lectures.

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AQFood: Aquatic Food Processing and Technology, NTNU

The course is an e-learning course with the aim to give the student an overview of how processing and storage conditions influence the quality and shelf life of aquatic food. Students will gain an overview of how processing and storage conditions influence the quality and shelf life of aquatic food. The students will be given an introduction to fish muscle as a raw material for different processing procedures. Muscle structure, muscle biochemistry, and biochemical processes after death (rigor) in relation to quality and processability will be reviewed. The composition and use of by-products will also be reviewed. An overview of different processing methods, both traditional and novel, will be given. Finally packaging of fish and fish products will be reviewed.

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The AQFood programme combines primary production (aquaculture and fisheries) and food processing with a focus on innovation, traceability and sustainability in the overall aquatic food value chain and a delivery of high quality, safe products

AQFood: Safety & Human Health Effects of Aquatic Food, DTU

The objective of this e-learning course is to provide the students with an overview of both the potential hazards and the human health benefits of aquatic food consumption. This course provides students with key information for risk assessment, risk management (HACCP) and risk-benefit analysis in relation to aquatic food processing, packaging, distribution and consumption. The course will train student to identify hazards and to discuss how processing, distribution and consumption will influence safety and health effects of aquatic food. Relevant biological and chemical hazards in aquatic food are presented including pathogenic bacteria, viruses, parasites, aquatic biotoxins, histamine/biogenic amines and industrial and environmental contaminants. Quantitative microbial ecology, mathematical modelling and software are included for evaluation and management of hazards during processing and distribution of aquatic food to the end-consumers. Functional aquatic food components (omega-3 fatty acids, vitamin D, proteins/peptides, taurine, selenium, iodine, chitosan, antioxidants, polysaccharides, macro algae) and their beneficial human health effects are presented and evaluated in relation to regulations, health claims and risk benefit analysis.

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AQFood: University of Iceland offers a web course on sustainable development and supply chain management

The contribution of UoI to the AQFood in the first semester is the e-learning course „Aquatic food supply chain management, environment and resources“. Instead of developing a completely new course, relevant lectures in ongoing courses at UoI on supply chain management and environment and natural resources were adapted as e-learning courses. The lectures were recorded in class during the semester and made available on the Fronter platform for the AQFood students. The distance learning students from UMB and DTU were offered an on line discussion session once a week to discuss assignments which were posted and handed out in the same way as assignments for the local UoI students.

An emphasis was on linking the assignments in the course to problem solving for companies in the

fisheries or aquaculture industries. The students in DTU and UMB worked in group projects on sustainable development for a local aquaculture company in Denmark and an aquaculture research station at UMB in Norway and presented their results to supervisors in DTU, UMB and UoI using on-line Adobe Connect or conference meetings

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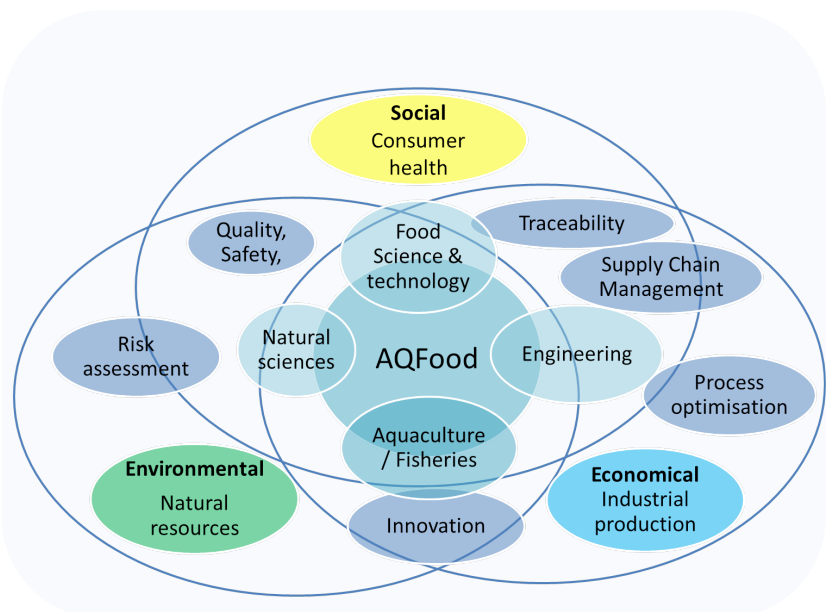
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AQFood and sustainable growth of the aquatic food value chain

The AQFood combines the expertise of different disciplines which are needed to promote sustainable growth of the businesses in the aquatic food value chain, the health of the consumer and sustainable use of resources. The aim is to provide expertise for students in natural sciences and engineering to transfer technological know-how and scientific excellence in the Nordic marine sector. The AQFood is offering an education with a focus on food science, aquaculture and fisheries that is relevant for the aquatic food production and manufacturing industries as well as technology and service companies to motivate innovation, sustainable production and implementation of procedures to enhance the quality and safety of food products to ensure the well-being of the consumers.

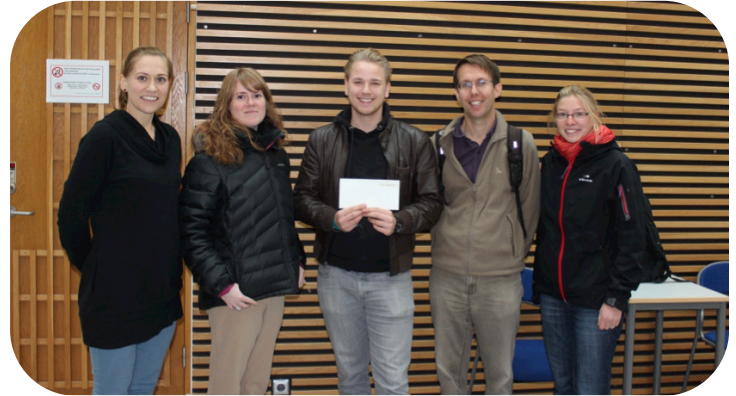


The scientific disciplines and the main themes covered in the AQFood master programme representing the key areas of importance for sustainable development of the aquatic food value chain

Vísir a fisheries company in Iceland gives an award to students in a competition on realistic goals and indicators for sustainable development

The involvement of AQFood in the course in Environment and Natural Resources influenced the selection of a fishery company as a case in the assignment of students. The students visited the company and received information on the activities of the company relevant for the project on sustainable development of fisheries companies. The assignment was set up as competition among the student groups and the task was to help building a credible and a realistic company wide sustainability strategy. The steps in this process were threefold; To create an overall sustainability statement for the company; to define several specific sustainability goals for the company; and to define a list of 10 sustainability indicators for the company which could be used to measure progress towards sustainability. The students put forward ambitious statements and used the theories from the course on sustainable development with the aid of frameworks and management tools used for environmental and resource management, like decision analysis, cost benefit analysis, risk assessment and environmental assessment.

The winning team received an award from the company. Erla Ósk from Vísir emphasized that it was very encouraging for a company to be involved in such a project. She explained that there is usually not time or resources within the company to look beyond the daily routine, but in



Erla Ósk Pétursdóttir from the company Vísir in Grindavík (left) and part of the student group who received a prize for the best suggestion in the competition on approaches for sustainable development for a company. The following were in the winning group: Anna Margrét Kornelíusdóttir, David Cook, Hugrún Geirsdóttir, Hólmfríður Þorsteinsdóttir, Kjartan Guðmundsson, Nína María Saviolidis, Simon Wahome Warui, Valérie Marie M. Decat

this case all the ideas that were put forward in the projects were worthy to consider to implement more sustainable processes within the company not only regarding the production, products and resource, but also the issues to consider regarding the staff and society.

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Collaboration with the Icelandic Ocean Cluster – Ideas for student projects

University of Iceland representing AQFood and InTerAct has participated in a focus group on marine related education led by the Iceland Ocean Cluster. All educational institutions in Iceland which focus primarily or partly on marine education have formed a group to implement a common strategy to increase interest among new generations for marine related education. The eight institutions are emphasizing ways to increase cooperation, open the possibilities for students to take courses in different schools, and connect the education better to the industry.

Project sharing

Main outcome of the collaboration is an interactive web platform hosting a collection of students projects that are proposed by companies. Students can also post their profiles (i.e. use LinkedIn) on this common website.

Some companies have already posted ideas on student projects that are of interest, but additionally the schools have to collaborate and advertise the website and encourage students to link their profiles. Teachers should also help to put forward relevant project ideas to make sure to underpin the projects with scientific theories and approaches linked to the curriculum and learning outcome of the courses.

<http://www.sjavarklasinn.is/en/verkefnamidlun/>

Another task of the education group is to create a web based platform to provide an overview of job descriptions and educational pathways that are relevant for students who want to follow career opportunities in the marine sector. The approach is



to collect examples of career profiles from people who are working in different positions in the marine industries and in this way boost the image of the sector.

<http://www.sjavarklasinn.is/en/menntavitim/>

For further information contact: Eva Rún Michelsen, eva@sjavarklasinn.is

Students at NTNU visit Frøya in Norway - Speed Dating

Frøya is an island outside the Trondheim fjord in Mid Norway. The region has a large cluster of companies engaged in aquaculture and fisheries. A collaboration exists between NTNU and the secondary high school at Frøya. The objective of this collaboration is to bridge the gap between marine education, research and industry. In November a two day seminar was arranged where one day was dedicated to presentations from the university on challenges for the future, both from the university and from industry, the industry also gave an overview of competence needed in the future. In addition some examples of research and a presentation of the education - including the AQFOOD programme was given. At the end of the day there was a speed dating session where university employees and students met people from the industry. The aim was to come up with themes for possible project and thesis task. The speed dating was highly successful and was a low threshold tool for employees at different level in the companies could talk to researchers and students. Several relevant tasks came up and will be followed up by contact with the companies. The second day was dedicated to visit to a fish farm and a site for growing seaweed. The students that participated gave feed back that this had been interesting and increased their interest in the aquaculture/seafood business.

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The Nordic InTerAct university members are also leading the international master programme

*AQFood
Aquatic Food Production - Quality and Safety*



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www.aqfood.org