NTNU | Kunnskap for en bedre verden

INFORMASJONSMØTE

Masterstudenter IBT Valg av masteroppgave/veileder

Masterstudent ved Institutt for bioteknologi og matvitenskap

Henrik Stamnes Dahl - studieveileder

Masterstudent ved Institutt for bioteknologi og matvitenskap

Her får du informasjon for masterstudenter tilknyttet Institutt for bioteknologi og matvitenskap.

English version: Master student at the Department of Biotechnology and Food Science

Lenke: Info om masteroppgave ved NTNU.

Informasjonen på denne siden gjelder for følgende masterprogram:

- Det 5-årige integrerte masterprogrammet i bioteknologi (MBIOT5)
- Det 2-årige internasjonale masterprogrammet i bioteknologi (MSBIOTECH)
- Det 2-årige masterprogrammet i mat og teknologi (FTMAMAT)
- Det 5-årige sivilingeniør/masterprogrammet i industriell kjemi og bioteknologi (MTKJ)
- Det 2-årige sivilingeniør/masterprogrammet i industriell kjemi og bioteknologi (MIKJ)

Hvordan finne prosjekt og veileder ved IBT

Det er studentens ansvar å finne prosjekt og veileder, så du må altså selv kontakte en veileder for å diskutere og avtale et prosjekt. Se på prosjektforslagene (lenket til under), hør med andre studenter og bruk instituttets nettsider for å se på de ulike forskningsgruppene. Ansvarlig veileder må være NTNU-ansatt i stilling som professor, professor II, førsteamanuensis eller amanuensis. I tillegg har man ofte medveiledere som kan være PhD-stipendiater, postdoktorer eller forskere som er tilknyttet prosjektet. Ved masteroppgaver utenfor IBT eller IBI, også ved andre institutt ved NTNU, trenger du en intern ansvarlig veileder fra IBT eller IBI.

Masteroppgaven er et selvstendig arbeid hvor veileder gir innspill og kommentarer til studentens oppgaveskriving. Om studenten velger å utføre masteroppgaven ved instituttet, anbefaler vi å velge oppgave knyttet til pågående forskningsprosjekter. Det anbefales å avtale faste møter med veileder ved inngåelse av mastergradsavtalen, for eksempel hver



🕞 Detaljer 🔒 Skriv ut

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Department of biotechnology and food science Food science division

https://www.ntnu.edu/ibt/research/food-science#/view/about

Division leader Jørgen Lerfall https://www.ntnu.edu/employees/jorgen.lerfall



Food science

- Quality of food raw materials and food products including changes during processing
- Shelf life, food safety, food quality, hygienic design, biofilm, biopreservation
- Marine lipids and proteins
- Utilization of rest raw materials and new food raw materials

Key-numbers		
Master students*	30	
Bachelor students*	40	
Ph.dcandidates	16	
Post docs/Prof II	1(2)	
Scientific staff	15	
Technical staff	4/5	







Laboratories

Akrinn

- Food processing lab
 - Packaging, salting, drying, smoking, heating, pasteurization, fermentation, hydrolysis etc.
- Analytical food chemistry lab
 - HPLCs, GC, spectrophotometry etc.
 - Vision technology
- Microbiology lab
 - PCR etc.
 - Class I
 - Class II (pathogens)
- Sensory laboratory

- Gløshaugen
 - Food chemistry lab
 - Analytical lab



Potential supervisors

Supervisors	Topics	Location
Jørgen Lerfall	Processing of seafood, food chemistry, packaging, quality, shelf- life, food safety etc.	Akrinn
Turid Rustad	Food chemistry, rest raw materials, macro algae etc.	Gløshaugen
Alexander Dikiy	Food metabolomics	Gløshaugen
Anita N. Jakobsen	Food microbiology, preservation technology and food safety	Akrinn
Eva Falch	Bioeconomy, sustainable food processing, utilization of by-products	Akrinn
Marcin A. Kurek	Food chemistry, cereals, vegetables, encapsulation, nutrition	Akrinn
Ida-Johanne Jensen	Food nutrition, underutilized seafood resources	Akrinn
Eirin Marie S. Bar	Hygenic design, food safety, sustainable food processing	Akrinn
Lisbeth Mehli	Food microbiology, molecular biology, food safety	Akrinn
Sunniva Hoel	Food microbiology, molecular biology, food safety	Akrinn
Atle Hannisdal	Risk assessment, HACCP	Akrinn
Lene Waldenstrøm	Sensory evaluation of food quality and consumer science	Akrinn



Master projects in food science?

- Contact a supervisor within your field of interest
- Search for available project and thesis proposals at the NV faculty Hub <u>https://www.ntnu.no/machform/report.php?key=176077x</u> <u>c31903f2c1</u>









QUESTIONS?

Please contact the food science division Jørgen Lerfall +47 920 34 444 / +47 73 55 97 49 jorgen.lerfall@ntnu.no





Biopolymer and Biomaterials -NOBIPOL







Agarose and carragenarMucins

Pullulan and dextran

Hyaluronan

BIOPOLYMER ENGINEERING



Alginate epimerases: from protein engineering to polysaccharide engineering



LN L L Yondervik et.al Biomacromolecules, 2013, 14 (8), pp 2657–2666 Staninci et.al , Carbohydrate polymers 2018, 180, pp 256-263

Biopolymers and biomaterials: Tailoring functional a mechanical properties for use in tissue engineering



Alginate capsules - immune protection of insulin producing cells for the treatment of Type 1 diabetes





Enzyme – biopolymer interactions

- Alginate epimerases
- Alginate lyases
- Chitinases
- Deacetylases
- LPMO Lytic polysaccharide monoxygenases







From lab bench to market

novel dosage form and novel drug





Cystic fibrosis foundation drug pipeline

Mucociliary Clearance



Pharmaceutical innovations

mucosal delivery of nanomedicines and oncology applications





Biopolymer and Biomaterials - NOBIPOL

People

- 4 professors
- 2 adjunct professors/researchers
- 4 post docs
- 4 engineers
- 11 PhD candidates
- 10 15 MSc students



Collaborations

- NTNU Dept. of Cancer Research and Molecular Medicine, Dept of Physics,
- Sintef (Sintef Materials and Chemistry)
- Industry (FMC Health and Nutrition, AlgiPharma, Ayanda, etc.)
- Academia, Norway: NMBU, UiT, Nofima, ..
- Ninternational: University of Trieste, Italy; University of Illinois at Chicago,

Biopolymer and Biomaterials - NOBIPOL

- Projects
 - EU projects
 - Biotek 2021
 - Norwegian Research Council: FriPro, ERA Net,

Optimization

- NTNU funded projects (NTNU Biotechnology, SO funding)
- Industry
- Infrastructure
 - NMR
 - Preparative and analytical colomns (SEC-MALS, HPADEC)
 - Rheology
 - ITC, Zeta sizer
 - Optical tweezers



Kunnskap for en bedre verden



Sulfated alginates for cartilage engineering





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- Catherine Taylor Nordgård (catherine.t.nordgard@ntnu.no)





Analysis and Control of Microbial Systems - ACMS

Professor Olav Vadstein (microbial ecology) Professor Ingrid Bakke (environmental biotechnology) Adjunct Assistant professor Kari J. K. Attramadal (aquaculture technology, 20%)

2 post.doc / researchers 10 doctoral students 12 – 16 Master students





Analysis and Control of Microbial Systems Group, NTNU, 2020



Left to right: Front row: Marthe Hafskjold & Erik, Charlotte Volpe & Raffaele, Sol Gomez de la Torre Canny, Ragnhild Olsen Fossmark, Vilde Årdal, Anne Helene Sandmark; Second row: Kathrine Obrestad, Leila Jafari, Annika Messemer, Thomais Tsoulia, Madeleine Gundersen, Eirik D Lorentsen, Ragnhild L Rong; *Third row*; Kjetill Østgaard, Randi Utgård, Alexander W Fiedler, Ingrid Bakke, Mathew K Avarachen, Martha KR Drågen, Olav Vadstein; Back row: Ragnhild I Vestrum, Tore Brembu, Marita Gresseth, Kari JK Attramadal, Rune Hatland, Amalie JH Mathisen; *Not present*: Sharada Navada, Stine Wiborg Dahle, Synnøve Lofthus, Hendrik Langeloh, Ann Isabel Carmo Rosvoll, Hugues Palandre, Ingrid E Harris, Daniel Wæge, Renate Sandberg,



Kunnskap for en bedre verden Pettersen, Sunniva I Gaarden, Elin Håberg

Research topics:

- Microbial waste and water treatment
 - Microbial biogas production systems
 - Microbial conversion of ammonium and organic carbon (Recirculating Aquaculture Systems)
- Microbial control/management in aquaculture
 - How to create healthy microbial water quality
- Fish/microbe interactions
 - Interactions between salmon fry and bacteria
 - Bacteria free and gnotobiotic yolk sac salmon larvae
- Microalgae as production organisms and raw materials
 - Molecular analysis of synthesis of silica cell walls
 - Microalgae as (











Potential Master thesis topics:

- Microbial conditions in production systems for the copepod Acartia tonsa
- Adaption of a partial nitrification/anammox process to RAS conditions: mapping of chemical nitrogen conversions and biofilm microbiomes
- Relationship between gut microbiota and fitness in the water flea Daphnia magna
- Effect of mechanical washing of tank walls on microbial water quality in salmon farming
- Correlation between microbiomes in RAS and water chemistry/fish welfare using supervised machine learning
- Impact of different water treatment strategies (TiO₂-AOP, O₃, UV) on microbiomes and microbial loads in RAS
- Optimization of Enhanced Biological Phosphorus Removal (EBPR) process for typical Norwegian conditions
- Other topics?????
- Capacity for work on algae is fully booked



Martin Wagner Bioanalytical Toxicology Group IBI, NTNU



Our research on plastic pollution





Some examples







Some examples







Some examples



lacksquare NTNU \mid Kunnskap for en bedre verden



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