INFORMATION FOR MSc STUDENTS
AT THE
DEPARTMENT OF CHEMISTRY, BIOTECHNOLOGY AND FOOD SCIENCES

Index:

1. Contact persons 3
2. Deadlines 4
3. General information about the MSc program 5
4. About the master degree program 5
5. How to get assigned to a master degree project? 6
6. How to design a master thesis 8
7. Special curriculum 10
8. Completion of the Master Degree: 10
   The supervisor's responsibility 10
   The candidate's responsibility 11
   Examination / defense 11
   The Department's responsibility 111
9. Guidelines for the defense / examination 12
10. Complaint 12
11. Links 12
   Appendix 1 Evaluation of the thesis 123

1. Your contact persons:

Grethe Kleven (BTB, ground floor) phone no 64 96 58 26
Student advisor, general inquiries, all the Department's study programs
Secretary, the Department's educational board.

Elisabeth Fjærvoll Oslen, (BTB, ground floor) phone no 64 96 58 69
Student advisor in food science and bioinformatics and applied statistics.
Secretary, the Department's program committee in food science.
Secretary, the Department's program committee in bioinformatics and applied statistics.

Janne Beate Utåker (BTB, ground floor) phone no 64 96 58 25
Student advisor in biotecnology, microbiology and chemistry.
Secretary, the Department's program committee in biotechnology and microbiology.
Secretary, the Department's program committee in chemistry.

Arne Tronsmo (Room BT2B.31) phone no 64 96 58 72
Head of the Department's educational board.

Dag Ekeberg (Room BT1B.38) phone no 64 96 58 74
Chairman for the program comittee in chemistry.

Solve Sæbø (Room M218) phone no 64 96 58 29
Chairman for the program comittee in bioinformatics and applied statistics.

Trude Wicklund (Room M208) phone no 64 96 58 55
Chairman for the program comittee in food science.

Dzung Diep Bao (Room MU92) phone no 64 96 59 10
Chairman for the program comittee in biotecnology and microbiology.

2. Deadlines:

Payment of the semester fee:
September 15th and February 15th

Registration deadline for exams:
August block: First Friday in the block period
Autumnt parallel: September 15th
January block: October 1st
Spring parallel ***and*** *June block*: February 15th

"*Notification for choice of thesis*" must be delivered to your student advisor by:
Summer admission:
December 1st, first year of study for a 60 credit thesis.
June 1st, first year of study for a 30 credit thesis.

Winter admission:
June 1st, first year of study for a 60 credit thesis.
December 1st, first year of study for a 30 credit thesis.

The form"*Contract – thesis*" must be delivered to your student advisor:
- When you start with the practical work.

"*Agreement for Special Curriculum*" (mandatory for 60 point master thesis):
Summer admission: Must be delivered to the student advisor or the head of the educational board before February 15th second year of study.
Winter admission: Must be delivered to the student advisor or the head of the educational board before September 15th second year of study.

Submission of Master thesis (at the Student information center):
Summer admission:
Second year of study, May 15th before 3.00 pm
Winter admission:
Second year of study, December 15th before 3.45pm

General advice:
If you have not written a Bachelor thesis or corresponding, we strongly recommend that you choose a topic with term paper to get writing experience before starting the Master thesis. Alternatively, you may participate in the course *LNG240 Academic Writing, 10 credits*.

The University Library offer courses in how to use different reference tools for administrating the refereces in your thesis. For further information, please contact the main library in the Tower Building.

NB! It's your responsibility always to stay updated about the current rules and regulations for your study program. You will find them here:
http://www.umb.no/sit_english/article/rules-and-regulations

3. General information about the Master of Science program

A MSc program consists of 120 credits, of wich 60 or 30 credits is a master thesis.Those who choose a 60 credits thesis must take 60 credits courses of wich 5, 10 or 15 credits might be a special curriculum (more about this in section 7). Students with a 30 credits thesis may also include a special curriculum in their MSc.

Courses in the Master degree, 60 credits thesis:
A minimum of 30 credits must be master level courses (course code at the 300-level) and a maximum of 30 credits may be advanced bachelor level courses (course code at the 200-level). All study programs have mandatory courses. Be sure to set up an educational plan including the mandatory courses; the study advisor will help you.

Courses in the Master degree, 30 credits thesis:
A minimum of 40 credits must be master level courses (course code at the 300-level) and a maximum of 50 credits may be advanced bachelor level courses (course code at the 200-level). All study programs have mandatory courses. Be sure to set up an educational plan including the mandatory courses; the study advisor will help you.

NB! Bachelor courses required as a part of your master thesis:
Most students holding a BSc degree from other universities than UMB will be admitted to a MSc program provided that they include certain additional courses, mandatory for the *bachelor* study at UMB. These students will be notified when they start their master study programme.They must accomplish the courses in question *in addition to* the mandatory courses in their master programme.

4. About the master degree program

What does a master degree program involve?

- A practical part including several techniques that you perform on your own, with supervision.
- A theoretical part with a total of 60 or 90 credits.
- Writing a master degree thesis that equals 60 or 30 credits, describing the practical work.

What do we expect from a master degree student?

- We expect you to work independently and on your own initiative, after a thorough introduction to the project area from your supervisor.
- You are responsible for reading relevant litterature and keep yourself updated in your field of work.
- We recommend that you use a significant amount of time to read relevant literature and search the web for information regarding your master project. This will help you to get a sense of ownership for your project.

- We recommend that you cooperate with other students regarding your academic progress, time schedules, curriculum (study groups) and in any issues or problems that may occur with the administration or your supervisor.
- If you have a Special Curriculum as a part of your master's thesis, you must choose a topic for this early in your study, and start to work with the selected litterature before the practical work starts. Hence, the special curriculum will provide a necessary knowledge basis for the master thesis, not covered by the ordinary courses offered at UMB.

What can you expect from a supervisor?

- Shall act as an academic and moral support for the student through the work with the master's thesis, especially in the initial part.
- Shall provide the student with relevant literature in the initial phase of the project, to give the student a good start.
- Must give the student a thorough theoretical and practical introduction in essential tecniques.
- The supervisor shall write a project outline that defines the background for the project, goals and objectives, as well as describe the main techniques planned used during the project.
- The supervisor shall not "micromanage" the development of the student's work. It is important that students get the opportunity to work independently and take responsebility for their own work progress.
- Must encourage the student to start writing at an early stage in the study. The supervisor will also assist the student in writing an outline of the thesis.
- Should not have to read / correct many drafts of the thesis, one review should be sufficient. The student must be critical to his / her own writing and the final product shall mostly consist of the student's own thoughts and conclusions.

From the regulations:
Ad. 12-4, 3rd Section:

Student advisors estimated time obligations toward each student:
20 hours guidance, including grading of the bachelor thesis
40 hours guidance, including grading of the master thesis – 30 credits
80 hours guidance, including grading of the master thesis – 60 credits

5. How to get assigned to a master degree project?

You can find titles of completed master's degrees online, as well as suggestions for master projects. The Department arranges information meetings twice a year, in which ideas for new master projects are presented for you. Please contact potential supervisors in different diciplines and find out whether they have suggestions for a project that you suits your interests and background. When you have decided on a provisional title for your thesis, you and your supervisor must fill in the form "Notification for choice of thesis"
http://www.umb.no/sit_english/article/downloadable-forms-and-templates

Please deliver this form to your student advisor; deadlines for submission are specified in section 2 in this folder.
For students to gain a good sense of ownership and understanding for their project they will present a selected topic for their research group. This presentation shall take place before:
Summer admission:

- January 15th for a 30 credit master thesis, second year of study
- April 15th for a 60 credit master thesis, first year of study

Winter admission:

- August 15th for a 30 credit master thesis, second year of study
- January 15th for a 60 credit study thesis, first year of study

You may choose to perform your Master project at another research institution. In that case, you will still have your principal supervisor at the Department (UMB), in addition to a local (external) supervisor. An agreement between the two supervisors must be established before the form"Notification for choice of thesis" can be delivered. Please ask your student advisor for help. *Important*: All students assigned to the study programs at the Department for Chemistry, Biotechnology and Food Science shall have at least one supervisor from this Department.

6. How to design a master thesis:

Regulation for studies at UMB **§ 12-3** reads as follows:

The Masters Science thesis shall show the student's understanding, reflection, maturity and analytical ability. The thesis shall train the student to identify problems within one of the study program's scientific fields and to analyze and treat them with a scientific approach. Furthermore, the thesis shall train the student in scientific writing.

The master's thesis is to be written in a Nordic language or English. The thesis shall document the accomplished work, but remember to use a short and concise form. It is important to beware of being to orally in your language. (An oral written language is not the same as a readable, understandable text language). The thesis can be written as a monograph or divided into several chapters.

The thesis shall consist of:

- **Title**

  Shall be short and to the point. I. e. don't start the title with "A study of…."
  The title should be in both Norwegian and English but if you write the whole thesis in English use an English title only.

- **Preface**

  The preface shall describe how you came to work on this project, if possible give information also on how the project was funded, where and when the work was conducted. It is also important to include the name of your supervisors and others that contributed to your work achievement. If you want to thank your family and friends this is where you mention their names. The preface should be short and is to be

signed and dated. *The preface is written in a passive language (preteritum) - "did"/"was done".*

- **Summary in Norwegian** – even if the degree is written in English. Please ask your supervisor for help.

- **Summary in English**

  The summary should contain the projects main targets, a brief description of what you did during the project, the most important findings and conclusion. *The summary is written in a passive language (preterit) - "did"/"was done".*

- **Table of contents**

  Systematic overview of the following chapters and sections. The table of contens is an aid to the reader to keep track. It is important that the table of contents is neither too broad nor too detailed. The systematics in the division of chapters can be visualized with different fonts and varying degrees of intendtation to highlight the importance and relative value of each chapter. The number of attachments is given in the last row of the table.

- **Introduction**

  In this section, the students shall set their project in context, define the problem and give a clear objective for the project.
  This section shall prove that you have retrieved and understood the background literature relevant for the thesis. All information obtained and used in the project require a reference in the text, for example (Smith 2003)
  The introduction is written in both active and passive language (presence or preterit) – depending on what is natural in the context.

- **One or several "Materials and methods" chapters**

  In these chapters you shall give a thorough description of what has been done (with reference to the literature) so the experiments can be repeated accuratly by others. Please do not copy published procedures; only refer to the publication if you did not change anything. The list of chemicals used in the experiment must contain product name, producer with address, catalog number and grade of purity. You must include brand and producer of instruments, description of place for field experiments and all details for materials used in the degree.
  Names of organisms are written in italic. Either *Eschericha coli* or, subsequently, *E. coli.*
  Details of experimental conditions, number of repetitions etc.are also important. You must consider, however, if it is more appropriate to give the most specific details in figure or table captions.

- **Results**

  Present your results i a natural, continous sequence. The results you present must not appear more accurate than the method implies. Indicate

accurancy in common statistical terms such as median, standard deviation, number of samples / parallels.

This chapter shall only contain results, i.e a specification or vizualisation of your results, usually presented in the form of tables or figures with explanatory text. NB! Figures / tables with text should be self-explanatory, i.e the reader shall be able to understand the tables / figures without having to read the text. Explanatory text shall be *above* tables and *under* figures / images.
Each presentation of result must be followed by an explanatory text to clarify the most important findings. Remember, though, that this shall not be a discussion of the results.

- **Discussion**

  The most important chapter! This is where you discuss your results in relation to the literature. Consider the results to practical / theoretical use. It must be very clear from the text, which results are yours and which are others'. It is of great importance to be absolutely honest when it comes to your own results; all fixing and changing of results are a mortal sin! Remember to distinguish between facts and hypotheses. How to use the results practically and the opportunities for future research should be included in the end of this chapter.

- **Conclusion**

  A conclusion section is not necessary, but can be required as a natural continuation of your results. Make sure that the conclusion does not claim stronger statements than the results justifies. Look at the conclusion in the context of the summary and if it does not give information that is vital, it is recommended rather to skip this chapter.

- **Bibliography**

  You must choose a manner of presentation and use it consistently. It is recommended to use a literature database, e.g. Endnote.

  All literature quoted in your thesis must be in the bibliography, but the list must not include any literature not quoted. We recommend that you attend a course in use of literature databases hosted by the University library.

- **Appendix**

  Can be included, but only if it is more appropriate to mention detailed information here than in the ”Materials and methods” or ”Results” chapters. The appendix can contain observation data, calculations, standard statistical graphs, special analytical methods etc. Must be based on the thesis, with reference to the main text. If attachments are extensive, i. e. more than 10 pages, there must be a seperate appendix table of contents placed immediatly prior to the attachments.

Discuss with your supervisor and others in the academic community the further details in the design of your thesis. Theses written by previous students are available from your supervisor and from the University library.

7. Special Curriculum

A special curriculum of 5, 10 or 15 credits may be a part of your MSc courses. The special curriculum shall provide additional competence, relevant for the master project. This can be an in depth study on a topic, or a broader perspective of the subject than the university offers through standard courses. If the special curriculum is included in the reference literature of the thesis, the work with this curriculum must involve a significant expansion compared to what is generally expected with reference literature. There should be no considerable overlap between these.

The workload for a 5 credit special curriculum is 150 hours. How many pages this equals can vary with the type of literature, type of article and subject. Your supervisor will help you with this. The special curriculum is normally a balanced combination of book chapters and special articles. The contens of the special curriculum and the extent of it is decided in collaboration between the student and the supervisor. Application for approval of special topics (detailed bibliography) with title for the special curriculum must be signed by the student and the supervisor and be delivered to the head of the educational board (Arne Tronsmo) in the first half of the last semester (see section 2)

8. Completion of the Master's Degree

The supervisor's responsibility:

1. Make contact with one of the Department's appointed external examiners and make an agreement on sensorship. For both 30- and 60 credit theses there must be an agreement on the discussion of the thesis. In case of a special curriculum, an additional agreement on examination of this is performed. If none of the appointed external examiners at the Department is appropriate, the supervisor will inform the head of the educational board to nominate a sensor for this master degree.

2. Ensure that a correctly stamped version of the thesis (section 3: *Candidates' responsibility*, next page) is sent to external examiner.

3. In case of a special curriculum – will ensure an approved curriculum.

4. Book a room for examination and notify the student advisor. The student advisor will advertise the examination at the Department.

5. Inform the office for student affairs about the mark (grade) obtained in the examination.

The candidate's responsibility:

1. Register for exam in the StudentWeb, "M60-IKBM" or "M30-IKBM" (a special curriculum needs a separate exam registration).

2. Complete the thesis.

3. Make copies of the thesis. The department will cover the costs for up to five (5) copies. Binding can be done at *Rotator* or another suitable print shop.

4. Fill in "*Registration form for submission of Thesis*" http://www.umb.no/sit_english/article/downloadable-forms-and-templates and deliver three (3) paper copies of the thesis to the Students Information Centre (SiT) to get an official UMB stamp. SiT will keep one copy (for the University library) and you will bring the other two stamped copies to your supervisor. You must upload one copy of your thesis on the internet (http://www.umb.no/brage-en/). In addition, please deliver one copy (without stamp) to the student advisor. If the content of the thesis is confidential, you must attach this form: http://www.umb.no/statisk/sit_english/forms/thesis/forms_thesis_confidential.pdf

5. Deliver a signed "*Declaration for submission of thesis*" to your supervisor: http://www.umb.no/statisk/sit_english/forms/course_exam_transcript/forms_course_declaration.pdf

6.
Prepare for examination questions on the thesis (and the special curriculum, if included in your degree).

Examination / defense:

1. For those who have prepared a special curriculum, the day will start with an examination of this**.** The main supervisor will lead the examination. In some cases, an additional supervisor approved by the main supervisor may lead the examination.

2. **Defense of the master's thesis**. The candidate must answer all questions from the examiner and discuss the academic matters presented in the thesis (this applies to both 30- and 60 credits assignment).
   In the evaluation process, the supervisor shall provide the external examiner with information regarding equipment, unforeseen problems, help and supervising during the master project, the student's development and independence and other factors that may affect the mark (grade) given for the thesis.

The Department's responsibility:

1. Cover all expenses for the external examiner.

9. Guidelines for the defense / examination of the master thesis

1. Will be held within six (6) weeks from the submission deadline.

2. The external examiner will use an evaluation form in the evaluation process, (please see Attachment 1).

3. The candidate will not get to know the mark (grade) of the thesis until after the examination is over.

4. The defense is generally open for public. However, it is always up to the supervisor and the candidate whether the defense will be open or not. It is OK if the candidate prefers not to have a public defense.

10. Complaint

The Department of Chemistry, Biotechnology and Food Science has additional rules concerning complaints regarding the mark (grade) obtained on master theses (established in the Educational board the 28th of October 2005):
A complaint on the evaluation of the master thesis leads to the arrangement of a new, oral examination of the thesis. The new examination will be held within six weeks from the nomination of new examiners. The supervisor can be invited to the examination if the new examiners wish so.

11. Relevant links

Rules and regulations:
http://www.umb.no/sit_english/article/rules-and-regulations

Forms:
http://www.umb.no/statisk/sit_english/forms/thesis/forms_thesis_notif_choice
http://www.umb.no/statisk/sit/skjemaer/engelske/contract_degree_thesis.pdf
http://www.umb.no/statisk/sit_english/forms/thesis/forms_thesis_agrmnt_specialcurric.pdf
http://www.umb.no/statisk/sit_english/forms/thesis/forms_thesis_plagiarism.pdf
http://www.umb.no/statisk/sit_english/forms/thesis/forms_thesis_registration_submission.pdf
http://www.umb.no/statisk/sit_english/forms/course_exam_transcript/forms_course_declaration.pdf
http://www.umb.no/statisk/sit_english/forms/thesis/forms_thesis_extension.pdf
http://www.umb.no/statisk/sit_english/forms/thesis/forms_thesis_confidential.pdf

Templates:
http://www.umb.no/sit_english/article/templates-for-covers-of-bachelor-and-master-theses

Appendix 1.

Evaluation form (unfortunately in Norwegian, sorry!):

Vedtatt i UU sak 92/08

Vurdering av masteroppgaver ved IKBM **Dato**

Student	**Tittel**	
Veileder underskrift	**Veileder** Underskrift	**Sensor** underskrift

	Kommentarer	**Skår 0-10**	**vekt**	Poengsum
1 Veileders inntrykk av selvstendighet, initiativ, forståelse og modenhet			**10**	
2 Disposisjon og struktur			**2**	
3 Sammendrag			**2**	
4 Introduksjon og litteraturomtale			**12**	
5 Mål og problemstilling			**4**	
6 Metodebeskrivelse			**10**	
7 Resultatomtale			**10**	
8 Presentasjon av data i figurer og tabeller			**5**	
9 Diskusjon og konklusjon			**15**	
10 Litteratur/Referanser			**5**	
11 Språk			**5**	
Sum 1-11: Totalvurdering oppgave, skriftlig del				
Muntlig del: Formidlingsevne, forståelse, vurderingsevne			**20**	
Samlet poengsum				
Karakter skriftlig oppgave				

Anbefalt poengskala i forhold til karakter

A: 1000-900 B: 890-800 C: 790-600 D: 590-500 E: 490-400 F: 390-0 (ikke bestått)

Skjemaet underskrives av komiteen og leveres sammen med eksamensprotokollen.

Karakter på Mastergradsoppgaven

Ved evaluering av masteroppgaven skal sensorene vurdere hvordan oppgaven er bygd opp, om tittelen på oppgaven gir en god beskrivelse av innholdet, om sammendraget klart beskriver hva som er funnet, og om disposisjonen er logisk.
Om litteraturdelen gir en god innledning til forskningstemaet og om relevant litteratur er benyttet og referert på en korrekt måte.
Om materialer og metoder er klart og konsist beskrevet med alle nødvendige opplysninger og referanser.
Om resultatene er beskrevet og presentert på en god måte, at figurer/tabeller er korrekt utført og at resultatene er presisert men ikke diskutert.
At det går klart frem hva som er egne resultater.
At kandidaten i diskusjonen og eventuell konklusjon på en god måte setter egne resultater i sammenheng med tidligere publisert materiale.
Sensor skal også vurdere språk (bl. a. at språket er konsist med fullstendige setninger og at det ikke er brukt interne muntlige lab. uttrykk), ortografi og formuleringsevne.

Kandidatens selvstendighet, initiativ og kreativitet skal også kartlegges i samtale med veileder og kandidat.

Retningslinjer for bruk av skjemaet

Sensor fyller ut punkt 2-11 på forhånd, - pkt 1 fylles ut av veileder på eksamen.
Skjemaet legges ved eksamensprotokollen etter eksamen.
Den muntlige samtalen/diskusjonen skal benyttes blant annet til å kartlegge kandidatens selvstendighet. (NB. I beskrivelsen av bokstav-karakterene er det lagt stor vekt på vurderingsevne og selvstendighet).

Letter marks (grades), a general description:

Section 8-2 Letter marks range from A to F, where A is the highest pass mark and E the lowest pass mark. The letter F is used to designate "fail". The letter grades and their general evaluation criteria are described below:

Symbol	***Designation***	***General, non-subject-specific description of the evaluation criteria***
A	Excellent	An excellent performance, clearly outstanding. The candidate demonstrates excellent judgement and a high degree of independent thinking.
B	Very good	A very good performance. The candidate demonstrates sound judgement and a very good degree of independent thinking.
C	Good	A good performance in most areas. The candidate demonstrates a reasonable degree of judgement and independent thinking in the most important areas.
D	Satisfactory	A satisfactory performance, but with significant shortcomings. The candidate demonstrates a limited degree of judgement and independent thinking.
E	Sufficient	A performance that meets the minimum criteria, but no more. The candidate demonstrates a very limited degree of judgement and independent thinking.
F	Fail	A performance that does not meet the minimum academic criteria. The candidate demonstrates an absence of both judgement and independent thinking.