



POLITECNICO
MILANO 1863

Final examination

Angela Tumino

Each final project involves at least two types of actors:

- 1) The **student**, who is responsible for the content, the time management and all the activities needed for the design and development of the thesis. **The thesis can be written by one or two students**
- 2) The **supervisor**, a Professor or Assistant Professor at Politecnico di Milano, who guarantees that the work is relevant and coherent with the expected learning objectives of the MSc in Management Engineering. The supervisor evaluates the work consistently with the evaluation rubrics provided by the School of Industrial and Information Engineering

Further possible actors involved:

- 1) The **co-supervisor**, a research assistant, a professor or any other person who supports the supervisor in supervising the thesis
- 2) The **reviewer**, who is not involved in the supervision of the student's work and is selected to evaluate the thesis, when requested by the supervisor in line with the requirements of the School of Industrial and Information Engineering

How to find a supervisor

You can find a thesis work:

- **Looking at the thesis proposals on the Thesis bulletin board ('Bacheca tesi')** – online services
- **Sending direct e-mails to professors** in the research fields you would like to develop your thesis work (even if there aren't thesis proposals on the thesis bulletin board) to ask them for available topics, or suggesting them topics you are interested in

Please, consider that each professor has the possibility to supervise a limited number of theses. To be sure to find a professor available to supervise your work, it is important to get in contact with possible supervisors in advance

Thesis bulletin board

^ Degree - Final exam

Curriculum Vitae at the Politecnico

Registration to final exam

Graduation fee payment form

Thesis bulletin board



Proxies > Thesis bulletin board

THESIS BULLETIN BOARD

Search below for a thesis proposal or, if you already have a supervisor, enter the pairing here indicating the supervisor and the provisional thesis title:

THESIS PROPOSALS AVAILABLE

ALL THESIS PROPOSALS

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Application	Proposal status	Provisional title	Supervisor	Co-supervisor	Language	Abroad	Company	Keyword
	Pubblicata	Chiral deep eutectic solvents: structure and solvation properties of chiral solutes			IT/EN	N	N	chirality, solvation, optical properties, eutectic solvents
	Pubblicata	Non-ionic hydrophobic eutectic solvents as extracting agents for water remediation			IT/EN	N	N	eutectic solvents, water remediation, pollutants, microextraction
	Pubblicata	Rational design of sustainable supramolecular gels based on (deep) eutectic solvents and low-molecular weight gelators			IT/EN	N	N	gels, sustainable chemistry, physicochemical characterization

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Thesis bulletin board v. 1.0.3 / 1.0.3

Area Servizi ICT

Proxies > Thesis bulletin board

THESIS PROPOSAL

Type of course	Programme	Educational system
Laurea Magistrale	(471) BIOMEDICAL ENGINEERING - INGEGNERIA BIOMEDICA	ord. 278
Laurea Magistrale	(472) CHEMICAL ENGINEERING - INGEGNERIA CHIMICA	ord. 270
Laurea Magistrale	(486) ENGINEERING PHYSICS - INGEGNERIA FISICA	ord. 278
Laurea Magistrale	(498) FOOD ENGINEERING	ord. 270
Laurea Magistrale	(401) INGEGNERIA BIOMEDICA	ord. 270
Laurea Magistrale	(421) INGEGNERIA CHIMICA	ord. 270
Laurea Magistrale	(432) INGEGNERIA FISICA	ord. 278
Laurea Magistrale	(426) MATERIALS ENGINEERING AND NANOTECHNOLOGY	ord. 270
Laurea Magistrale	(505) MATERIALS ENGINEERING AND NANOTECHNOLOGY - INGEGNERIA DEI MATERIALI E DELLE NANOTECHNOLOGIE	ord. 270
Laurea Magistrale	(491) MATERIALS ENGINEERING AND NANOTECHNOLOGY - INGEGNERIA DEI MATERIALI E DELLE NANOTECHNOLOGIE	ord. 270

Supervisor: HELE ANDREA

Type of thesis:

Provisional title/proposed theme: Chiral deep eutectic solvents: structure and solvation properties of chiral solutes

Abstract: Deep eutectic solvents (DES) are an emerging class of environmentally benign solvents. In simple words, DES are mixtures of compounds which can interact each other ending up with non-ideal solutions characterized by impressive depression of the melting point at the eutectic composition, thus being liquid at ambient temperatures. Many DES can be prepared by mixing natural compounds. Nature provided a large pool of chiral molecules, very often present in both enantiomers, as in the case of (+)- and (-)-menthol. This fact provides us with many combinations of components to obtain chiral DES. In turn, a chiral solute may be solvated in different way in chiral DES, thus opening the way to an atomistic investigation on the solvation in chiral DES. The outcome of the research may find application in a large repertoire of fields, from the selective extraction of bioactive natural compounds to the fabrication of novel polarized light emitters.

Keyword: chirality, solvation, optical properties, eutectic solvents

Total number of places: 1

Language: Italiano e Inglese

Publication date: 28/01/2024

Deadline for application (expressed in months): 28/04/2024

Thesis abroad: No

Thesis in a company: No

Co-supervisors:

Proposal date:

Prerequisites: enthusiasm for research and team work

MEETING

Request for a meeting with the supervisor for clarification. An e-mail will be sent to the supervisor with the following text. Only one meeting can be requested for the following thesis proposal. A draft application is created with the meeting request.

Dear professor,

the student #STUDENT#, registration number #MATHSICOLA# requested a meeting for clarification on thesis proposal #TITOLO#.

Chiral deep eutectic solvents: structure and solvation properties of chiral solutes.

We invite you to contact the student to arrange the date and place of the meeting. From the 'Thesis Bulletin Board' service you can send an e-mail to the student.

The final examination for the Master of Science consists in the **presentation and discussion**, by the student, **of a thesis providing a theoretical, experimental and/or project-based contribution**, developed in an original way under the guidance of a supervisor

If the thesis is judged by the supervisor to be particularly deserving for its original contents AND for the personal contribution of the student, a reviewer is also involved, and he/she formulates an opinion on the work to be submitted to the graduation committee

Theses without reviewer can be based on:

- ***Empirical activities***, described within a solid theoretical background, leading to relevant implications for academics and practitioners (**on average 50-150 pages, MAX 200 pages**, excluding bibliography and attachments)
- ***Systematic literature review*** in which students analyze the literature on a specific and consolidated topic, providing a synthesis of what has been studied so far, identifying the topics currently under investigation and defining possible future lines of research (**on average 50-150 pages, MAX 200 pages**, excluding bibliography and attachments)
- ***Case study***, in which students must find a case (e.g. based on a short internship), identify a specific problem, and formulate a solution by applying models and / or methodologies consistent with the topics of the MSc in Management Engineering (**on average 40-50 pages + Digital and multimedia material**)

- A thesis with reviewer is characterized by the development of **new knowledge and / or innovative approaches** with reference to a **topic of interest both to the scientific community and to practitioners and / or policy makers**. The work must present a discussion of the results obtained aimed at highlighting the theoretical and practical / managerial implications
- The originality lies in:
 - the critical review of literature
 - the development of research questions, hypotheses, and frameworks
 - new models and empirical evidence
 - the discussion of the empirical results and the implication of the results
- The manuscript length on average is **between 100 and 150 pages** (excluding bibliography and any attachments). In any case, **the maximum length allowed is 200 pages** (excluding bibliography and any attachments).

Main info

	Without reviewer	With reviewer
Score	Between -1 and 4/110	Between -1 and 7/110 (+ max 1 extra-point in case of excellence)
Evaluation	50% supervisor 50% graduation committee	30% supervisor 20% reviewer 50% graduation committee
Cum Laude	NO	Following the rules of the school (see later)
Presentation	MAX 10 minutes + questions	MAX 15 minutes + questions
Number of authors	MAX 2	MAX 2
Executive summary	Not compulsory, but recommended	COMPULSORY

ONLY in case of theses with reviewer, the graduation committee may decide to award honors (“cum laude”), if both the the following conditions are true:

1. **All** the members of the graduation committee agree to assign the “cum laude”;
2. **$V > \max(113 - 0.5L, 111)$** , where:
 - V is the final evaluation without rounding
 - L is the number of exams in which the student obtained “cum laude”

The evaluation provided by the supervisor (and eventually the reviewer) is based on evaluation rubrics. The evaluation refers to:

- Contents (theoretical contents, methodology, novelty, discussion of the results, ...)
- Manuscript (thesis structure, clarity of the text, the graphs, ...)
- Personal skills (motivation, personal contribution, autonomy,)
- Extended executive summary

Link to evaluation rubrics (Italian):

https://www.ingindinf.polimi.it/fileadmin/user_upload/upload/Scuola/documenti_regole/Esami_di_laurea/Mo_dello_RELAZIONE_di_TESI_LM_Scuola_3i_per_studenti.pdf

- **Should the supervisor belong to the department/course of Management Engineering?**

NO, the supervisor can be from any department of Polimi. Anyway, since every course has its own peculiarities, pay particular attention to the features of the thesis work in Management Engineering, described in our Supplementary regulation

- **Can the final thesis be presented as an “article”?**

NO, the article format is not allowed. For details about the structure of the manuscript please refer to the Supplementary regulation for Management Engineering

- **If we are two students working at the same thesis, do we have to discuss the thesis together?**

Usually, the two students present the thesis together, in the same call. But this is not a requirement. The thesis can be presented only after finishing all the exams. If one of the student has not finished all the exams yet, the thesis can be discussed in different calls. Please consider that the manuscript should be uploaded when the first student is ready for the discussion

- **Can I do the thesis with a student attending another course (e.g. mechanical engineering, food engineering, etc.) in Politecnico?**

Yes, it is possible. In this case, however, the students cannot present the thesis together, because each student should discuss it in front of a commission belonging to his/her study course

- **Can I do a thesis based on an internship?**

Yes, you can. However, please consider that it cannot be just a report of the activities you've done during the internship. The content should be compliant with the requirements described in the supplementary regulation for Management Engineering

- **Can I choose whether to do a thesis with or without a reviewer?**

The final decision is in charge of the supervisor, who evaluates the final work and indicates if a reviewer is needed. However, if you have a preference on the final outcome, we suggest to be clear about your expectations with your supervisor, so that he/she can provide you with coherent indications

- **If I do a thesis with review, may I choose the reviewer?**

No, you can't. Your supervisor is required to indicate some possible reviewers, but the final decision is made by the degree coordinator, who may also select different reviewers than those proposed

- **Can I do the final presentation online?**

Online presentations are allowed only in case of a few limited exceptions. For online presentations you need to get the authorisation from the School: Presidenza3i@polimi.it

Guidelines for the final project:

- Supplementary regulation for Management Engineering
https://www.ingindinf.polimi.it/fileadmin/user_upload/upload/Studenti/REGLOLAMENTI_INTEGRATIVI/Regolamento_lauree_ENG_GESTIONALE.pdf
- Regulation the School of Industrial and Information Engineering:
<https://www.ingindinf.polimi.it/en/students/lessons-and-exams/bachelors-and-masters-degree-exams/regulations>
- Suggested template for the final thesis and the executive summary on the [Website](#) of the School of Industrial and Information Engineering

Evaluation rubrics:

- https://www.ingindinf.polimi.it/fileadmin/user_upload/upload/Scuola/documenti_regole/Esami_di_laurea/Modello_RELAZIONE_di_TESI_LM_Scuola_3i_per_studenti.pdf

