ME MSc Graduation Community

Journey Session 1

"Am I prepared for the graduation project?"

ME Academic Counsellors: Lourdes Gallastegui Pujana & Mia Verstraeten

Graduation Project: Explore

- What's in the project?

- On what grounds will you be graded?

- What are you good at?

- Which skills do you feel insecure about?

- Which resources are available?

Programme of this session

09.00 – 09.45	Phases, Rubrics, Skills
09.45 – 10.15	Strengths, Challenges, Resources
10.15 – 10.30	More Resources & next Steps

Phases of the graduation project

1. Literature review

2. Research/design thesis project

   - research methodology

   - simulation

   - experiments & data analysis

   - programming

   - ...?

3. Writing thesis report and final presentation

4. Defending thesis

Rubrics in academics

From Wikipedia, the free encyclopedia

"In the realm of US education, a **rubric** is a "scoring guide used to evaluate the quality of students' constructed responses" according to James Popham.[1] In simpler terms, it serves as a set of criteria for grading assignments. Typically presented in table format, rubrics contain evaluative criteria, quality definitions for various levels of achievement, and a scoring strategy.[1] They play a dual role for teachers in marking assignments and for students in planning their work.[2]

Components of a Scoring Rubric

A scoring rubric typically includes dimensions or "criteria" on which performance is rated, definitions and examples illustrating measured attributes, and a rating scale for each dimension."

Rubric MSc Literature Review for Engineering Students Learning Objectives

The student is able to:

- **Search, select, evaluate, and synthesize** representative scientific sources for the topic from several perspectives (for example, economic, ethical- environmental, -and health) relevant to the topic;

- **Apply best practices** for conducting methodological searches in the literature review;

- Write a **comprehensive and balanced**, opinionated literature review that deeply explores the issues in the area of study, leading to new insights in academic language;

- **Clearly define** the purpose and objectives of the literature review;

- **Draw conclusions** related to the literature research problem and give recommendations towards new research opportunities, applications and consequences for the field;

- **Argument a statement** using the information from literature, including counter arguments;

- **Manage the individual learning process**, including time management and adequate planning (minimally exceeding allotted time).

Rubric: MSc Literature Review   Student name: Student number: Date: Course code:

	Levels / Criteria	Excellent (10-9)	Good (8)	Satisfactory (7)	Poor (6)	Insufficient (<6)
Content of written report (65%)	Introduction	Offers a strong, clear, and thorough, yet concise, overview of the research problem leading to a specific, clear, and answerable research question. Describes the scientific, practical (engineering) and social relevance and adds a substantial new perspective or insight to the field. The relevance is described excellent from several perspectives (e.g., economic, ethical, environmental, social, medical, health) and technological developments.	Offers a clear, and thorough, yet concise, overview of the research problem leading to a specific, clear, and answerable research question. Describes the scientific (engineering) and social relevance and adds a new perspective or insight to the field. The relevance is described from several perspectives (e.g., economic, ethical, environmental, social, medical, health) and technological developments.	Offers a concise and correct overview of the research problem leading to a specific, clear, and answerable research question. Describes the (engineering) scientific and social relevance. Relevance is described from several perspectives (for example, economic, ethical, environmental, social, health, perspectives) and technological developments, but misses some essential perspectives/developments.	The introduction offers a limited selection of relevant literature, and the research problem misses focus. The research question is unclear.	The introduction does not offer a selection of relevant literature and the research problem misses. The research question is unanswerable/ missing.
	Literature retrieval/ documentation	The report includes all relevant parts of the research field, has excellent focus, is up to date. The review is based on a thorough, well-documented search strategy in scientific papers, book chapters, theses, or patents and it is clearly and thoroughly documented. Any necessary data or tools required to replicate the review are clearly provided.	The report includes relevant parts of the research field, has a good focus, is up to date. The review is based on a thorough, documented search strategy in scientific papers, book chapters, theses, or patents and it is well-documented with appropriate references and citations. However, there may be some minor gaps in the documentation or some tools or data required to replicate the review may not be fully provided.	The report covers relevant parts of the research field with a focus that is sufficient. The review is based on a documented search strategy in scientific papers, book chapters, theses, or patents and it is adequately documented, with appropriate references and citations. However, there may be some gaps in the documentation that make it difficult to fully replicate the review.	The report covers some relevant parts but also lacks main themes. The review is hardly based on a documented search and it is poorly documented, with incomplete or inconsistent references and citations. The documentation may be difficult to follow and may not provide enough information to fully replicate the review.	The report does not cover relevant parts but also lacks main themes. The review is not based on a documented search and it is completely lacking in documentation or references. It is impossible to replicate the review based on the information provided.
	Body / literature synthesis	The body/literature synthesis is an excellently critical and in-depth[1] evaluation of the literature, which is technically correct. The interpretation of the literature is convincing, comprehensive and balanced, opinionated that deeply explores the issues in the area of study, leading to new insights.	The body/literature synthesis is a critical and in-depth evaluation of the literature with acceptable technical information. The interpretation of the literature is convincing, comprehensive and balanced, opinionated that deeply explores the issues in the area of study, leading to new insights in academic language	The body/ literature synthesis is a sufficiently critical evaluation of the literature with satisfactory technical information. The interpretation of the literature is convincing, comprehensive and balanced, opinionated and deeply explores the issues in the area of study, leading to new insights.	Incomplete display of the literature. The critical synthesis of information is poorly opinionated and hardly explores issues in the area of study. The technical information is poor.	Absent display of the literature. A critical synthesis of information with an exploration of issues in the area of study is missing, proper technical information is missing.
	Discussion / conclusions & recommendations/ research plan	The discussion is an excellent critical and in-depth reflection on the findings, integrating the new findings with the current state of (technical) knowledge very well, and corresponds with the research question. The results are discussed in the light of the research problem. Excellent depth of the contribution achieved making use of the existing literature with new insights, new models, and hypotheses discussed. Recommendations are to-the-point and well-linked to the findings; the formulated research plan follows logically and consistently from the given conclusions and recommendations.	The discussion is a critical and in-depth reflection on the findings, integrating the new findings with the current state of (technical) knowledge well, and corresponds with the research question. The results are discussed in the light of the research problem. New insights, new models, and hypotheses are discussed. Recommendations are linked to the findings; the formulated research plan follows logically and consistently from the given conclusions and recommendations.	The discussion is a reflection on the findings and corresponds with the research question but has room for improvement. Integrating new findings with the current state of (technical) knowledge is sufficient. The results are discussed in the light of the research problem. New insights, new models, and hypotheses are discussed. Recommendations are linked to the findings; the formulated research plan follows from the given conclusions and recommendations.	In the discussion, connections with findings from the literature synthesis are hardly made and a link to the research question is not established. New (technical) findings are hardly integrated. Recommendations are absent or trivial. The formulated research plan does not follow logically from the given conclusions and recommendations; the formulated research plan does not follow logically and consistently from the given conclusions and recommendations.	The discussion is missing. The results are not discussed. Recommendations are missing and the formulated research plan does not follow from the discussion, conclusion and recommendations. The discussion, conclusion and recommendations miss an integration of any new findings with the current state of (technical) knowledge.
Structure and Style (10%)	Structure and reasoning	The line of reasoning is easy to follow and supported by the structure and follows the generic literature review structure. Consistently makes well-informed and rational decisions about the content and structure of the writing, showing a high level of critical thinking and self-awareness.	The line of reasoning is clear. The structure supports the legibility of the text and follows the generic literature review structure. Generally, makes well-informed and rational decisions about the content and structure of the writing, demonstrating critical thinking and self-awareness well.	The line of reasoning is mostly clear. The structure supports the legibility of the text and follows the generic literature review structure in a satisfactory manner. Makes informed and rational decisions about the content and structure of the writing but may demonstrate limited critical thinking and self-awareness.	The line of reasoning is unclear, and the paper is badly structured Makes few well-informed and rational decisions about the content and structure of the writing, demonstrating little critical thinking or self-awareness.	The line of reasoning is absent, and the paper is very badly structured. Makes no well-informed or rational decisions about the content and structure of the writing, showing no critical thinking or self-awareness.
	Citations and reference list	Citations are independently adjusted to the dominant style of the field? and consistent, complete and correct in an academic style. Citations and reference list include all resources cited in the review and corresponds perfectly with the academic annotation-style.	Citations are correct, consistent, and complete and correct in an academic style. Citations and reference list include all resources cited in the review and corresponds well with the academic annotation-style.	Citations in the text are not always in the right place, used consistently and correctly throughout the review. Citations and reference list are properly formatted in an academic annotation-style .	The citations in the text are incorrectly cited. An academic format for citations and the reference list has been used poorly.	The citations in the text are absent or incorrectly cited. An academic format for citations and the reference list has not been used.
	Use of academic language	Proficient use of academic language, the use of English is always consistent in use of either British or American English. The use of (technical) language is scientific, nuanced, logical, and clear. Language errors, spelling mistakes/grammatical errors are exceptionally rare.	Proficient use of academic language, the use of English is mostly consistent in use of either British or American English. The use of (technical) language is mostly scientific, nuanced, logical, and clear. Language errors, spelling mistakes/grammatical errors are rare.	Proficient use of academic language, the use of English is mostly consistent in use of either British or American English. The use of (technical) language is mostly scientific, nuanced, logical, and clear. Only a few language errors, spelling mistakes/grammatical errors.	Advanced use of academic language, the use of English is not consistent in use of either British or American English. The use of (technical) language is not scientific, nuanced, logical, and clear. Regular language errors, spelling mistakes/grammatical errors.	Advanced use of academic language, the use of English is mostly consistent in use of either British or American English. The use of (technical) language is not scientific, nuanced, logical, and clear. A lot of language errors, spelling mistakes/grammatical errors.
Transferable skills (25%)	Scientific attitude	The student actively raises critical questions and suggestions and integrates suggestions, ideas and solutions of the supervisor, demonstrating flexibility and adaptability to changing research questions, priorities, or sources of information.	The student raises critical questions and suggestions and integrates suggestions, ideas and solutions of the supervisor, demonstrating flexibility and adaptability to changing research questions, priorities, or sources of information.	The student critically reflects on questions and integrates suggestions, ideas and solutions of the supervisor, demonstrating flexibility and adaptability to changing research questions, priorities, or sources of information.	The student critically reflects on questions and integrates suggestions, ideas and solutions of the supervisor, demonstrating flexibility and adaptability to changing research questions, priorities, or sources of information.	The student is not able to be critical and reflective and relies on supervisor's instructions only.
	Management of (individual learning) process	Excellent management of the individual learning process, including time management and adequate planning (not exceeding allotted time). Changes to scope are strongly justified.	Managed the individual learning process well, including time management and adequate planning (not exceeding allotted time). Changes to scope are justified.	Managed the individual learning process satisfactory, including time management and sufficient planning (not exceeding allotted time); changing scope on request examiner.	Managed the individual learning process poorly, including time management and inadequate planning (exceeding allotted time with 1 – 4 days); scope changed poorly after request examiner.	Manage the individual learning process inadequately, including time management and poor, inadequate planning (exceeding allotted time with > 5 days); scope not changed after iterations on request examiner.

Grading criteria of literature review

- **Introduction**

- **Literature retrieval / documentation**

- **Body / literature synthesis**

- **Discussion / conclusions & recommendations / research plan**

- **Structure and reasoning**

- **Citations and reference list**

- **Use of academic language**

- **Scientific attitude**

- **Management of individual learning proces**

Grading criteria of literature review Content of written report (65%)

- **Introduction**: clear, thorough, concise overview of the research

  problem, leading to a specific, clear and answerable research

  question.

  It describes the relevance (from several perspectives) and adds new

  insights to the field.

Grading criteria of literature review Content of written report (65%)

- **<mark>Literature retrieval / documentation</mark>**: report has good focus, is up to date. Review is based on thorough, documented search strategy, with appropriate references and citations.

Grading criteria of literature review Content of written report (65%)

- **Body / literature synthesis**: critical and in-depth evaluation. Convincing, comprehensive and balanced interpretation, leading to new insights in academic language.

Grading criteria of literature review Content of written report (65%)

- **Discussion / conclusions & recommendations / research plan**: critical and in-depth reflection on the findings, also integrating new findings, and corresponding with the research question. The formulated research plan follows logically and consistently from the given conclusions and recommendations.

Grading criteria of literature review Structure and style (10%)

- **Structure and reasoning**: clear line of reasoning. Well informed and rational decisions about the content and structure, demonstrating critical thinking and self-awareness.

Grading criteria of literature review Structure and style (10%)

- **Citations and reference list**: correct, consistent and complete citations, in an academic annotations style.

Grading criteria of literature review Structure and style (10%)

- **Use of academic language**: consistent use of either British or American English. Scientific, nuanced, logical and clear use of (technical) language. Very few spelling mistakes or grammatical errors.

Grading criteria of literature review
Transferable skills (25%)

- **Scientific attitude**: The student raises critical questions and suggestions and integrates suggestions, ideas and solutions of the supervisor, demonstrating flexibility and adaptability to changing research questions, priorities, or sources of information.

Grading criteria of literature review Transferable skills (25%)

- **<mark>Management of (individual learning) process</mark>: Managed the individual learning process well, including time management and adequate planning (not exceeding allotted time). Changes to scope are justified.**

ME Master Thesis Grading Rubric

		Excellent (9-10)	Good (8)	Satisfactory (7)	Sufficient (6)	Insufficient (<6)
Content	**Theoretical knowledge**	Has independently collected, processed and integrated theory from different fields or sources	Understands and can reproduce directly relevant theory at the level of MSc textbooks and scientific literature	Understands and can reproduce directly relevant theory at the level of MSc textbooks	Understands and can reproduce with some guidance relevant theory at the level of MSc textbooks	Does not understand and cannot reproduce directly relevant theory at the level of MSc textbooks
	Generation of new *knowledge* or	Rigorously proven and well-structured development of new theory through the use of advanced mathematical, numerical or experimental methods	Well-structured development of new theory through the use of advanced mathematical, numerical or experimental methods	Well-structured development of new theory through the use of standard mathematical, numerical or experimental methods	Basic development of new theory through the use of standard mathematical, numerical or experimental methods	No new theory through the use of standard mathematical, numerical or experimental methods has been developed
	Development of new *design*	Rigorously validated and well-structured development of a new design, or design method, through the use of advanced design methods and analyses	Well-structured development of a new design, or design method, through the use of advanced design methods and analyses	Well-structured development of a new design, or design method, through the use of standard design methods and analyses	Basic design approach is poorly structured or it is scarcely proven that the design is a solution to the problem	The developed design does not meet the design requirements or is otherwise clearly flawed
	Creativity, skills	Very creative researcher, demonstrates a very high level of aptitude for the research or design area	Creative researcher, demonstrates a good level of aptitude of the research or design area	Some creativity, demonstrates a reasonable level of aptitude for the research or design area	Limited creativity, shows little aptitude for the research or design area	Not creative, is lacking any aptitude for the research or design area
	Research/design significance	Results can be published in a journal publication or can be incorporated in the intended application	Results can be published in a journal publication or can be incorporated in the intended application, with some improvement or modification	Results can be published in a publication or can be incorporated in the intended application, but only after significant improvement or modification	Results can function as a basis for a publication or for the design in the intended application, but only after significant improvement or modification	Results cannot be used as is, and perhaps only after significant improvement or modification
Communication	**Quality and usefulness of report**	Excellent report in terms of contents, structure, referencing and clarity	Report is free of scientific errors and fulfills all requirements in terms of structure, referencing and clarity	Report fulfills most requirements in terms of structure, referencing and clarity and only has minor shortcomings	Report only fulfills basic requirements in terms of structure, referencing and clarity and has several shortcomings	Report does not fulfill basic requirements or contains scientific errors
	Quality of presentation and interaction with audience	Very clear presentation, very well organized, very good selection of information, very good eye contact, very clear voice, very clear answers	Clear presentation, well organized, good selection of information, good eye contact, clear voice, clear answers	Appropriate presentation, sometimes hard to follow, somewhat too many or too few details, little eye contact, answers not always clear	Basic presentation, hard to follow, too many or too few details, very little eye contact, answers often unclear	Speaker does not present information and findings clearly, misses introduction or conclusion, no eye contact, no structure, answers unclear
	Handling questions in defense	Offers new insights during discussion, in-depth argumentation, leading to a very interesting scientific meeting, detailed argumentation for all questions	Deals with advanced questions efficiently and comfortably, interacts well with questioners, detailed argumentation for most questions, interesting scientific meeting	Is able to deal with part of the advanced questions, rarely depends on supervisor, provides detailed argumentation only for a limited set of questions	Is able to deal with basic questions, depends on supervisor for advanced questions, is able to provide basic arguments, absence of detailed argumentation	Is hardly able to deal with the most basic questions, is hardly able to provide basic arguments
	Level of English	Excellent English writing and speaking skills	Good English writing and speaking skills	Satisfactory English writing and speaking skills	Sufficient English writing and speaking skills	The English writing and speaking skills have to be improved considerably
Process	**Contact with supervisor**	Regular meetings, discussions on relevant and challenging topics initiated by the student; excellent time, excellent content	Regular meetings, discussions on right topics initiated by the student; good time, good content	Regular meetings, discussions on standard topics initiated by the supervisor; satisfactory time, satisfactory content	Irregular meetings, discussions on standard topics initiated by the supervisor; sufficient time, sufficient content	Very irregular and untimely meetings, discussions on standard topics initiated by the supervisor; too little time, too little content
	Responsibility in work and writing, time management	Was project manager of the research project, initiated new related projects and initiatives, report was written independently, excellent time planning	Was project manager of the research project, report needed limited corrections by supervisor, good time planning	Showed satisfactory responsibility for the proper progress and completion of the project, report needed important corrections by supervisor, time planning could be improved	Showed sufficient responsibility for the proper progress and completion of the project, report needed significant corrections by supervisor, time planning should be improved	Showed no responsibility for the proper progress and completion of the project, is not able to write a report without significant support of the supervisor, is not able to make a time planning
	Performing experiments/ simulations (if applicable)	Exceptional practical (experimental/computer/data acquisition) skills; is always aware of safety issues, very careful and precise	Good practical (experimental/computer/ data acquisition) skills; works safely, carefully and precise	Could improve on practical (experimental/computer/data acquisition) skills, but is always aware of safety and operates accordingly	Should improve on practical (experimental/computer/data acquisition) skills, but is aware of safety and operates accordingly	Should improve considerably on practical (experimental/computer/data acquisition) skills; is hardly aware of safety and how to operate accordingly
	Critical attitude	Excellent critical attitude towards own results, literature and specialists	Good critical attitude towards own results, literature and specialists	Satisfactory critical attitude towards own results, limited critical attitude towards literature and specialists	Sufficient critical attitude towards own results	Has hardly any critical attitude towards own results
	Open mindedness	Is actively seeking for criticism to improve him/herself	Can handle criticism in a positive way	Responds to criticism, but in a defensive way	Less responsive to criticism or responds to criticism in a defensive way, loses motivation by criticism	Non-responsive to criticism or responds to criticism in an aggressive way, gets demotivated by criticism

Grading criteria of ME Master Thesis Content

- **Theoretical knowledge**

- **Generation of new knowledge or development of new design**

- **Creativity, skills**

- **Research/design significance**

Good (8)

Content		
	Theoretical knowledge	Understands and can reproduce directly relevant theory at the level of MSc textbooks and scientific literature
	Generation of new *knowledge* **or**	Well-structured development of new theory through the use of advanced mathematical, numerical or experimental methods
	Development of new *design*	Well-structured development of a new design, or design method, through the use of advanced design methods and analyses
	Creativity, skills	Creative researcher, demonstrates a good level of aptitude of the research or design area
	Research/design significance	Results can be published in a journal publication or can be incorporated in the intended application, with some improvement or modification

TU Delft

Grading criteria of ME Master Thesis Communication

- Quality and usefulness of report

- Quality of presentation and interaction with audience

- Handling questions in defense

- Level of English

Good (8)

Communication	**Quality and usefulness of report**	Report is free of scientific errors and fulfills all requirements in terms of structure, referencing and clarity
	Quality of presentation and interaction with audience	Clear presentation, well organized, good selection of information, good eye contact, clear voice, clear answers
	Handling questions in defense	Deals with advanced questions efficiently and comfortably, interacts well with questioners, detailed argumentation for most questions, interesting scientific meeting
	Level of English	Good English writing and speaking skills

Grading criteria of ME Master Thesis Process

- **Contact with supervisor**

- **Responsibility in work and writing, time management**

- **Performin experiments / simulations**

- **Critical attitude**

- **Open mindedness**

Good (8)

Process		
	Contact with supervisor	Regular meetings, discussions on right topics initiated by the student; good time, good content
	Responsibility in work and writing, time management	Was project manager of the research project, report needed limited corrections by supervisor, good time planning
	Performing experiments/ simulations (if applicable)	Good practical (experimental/computer/ data acquisition) skills; works safely, carefully and precise
	Critical attitude	Good critical attitude towards own results, literature and specialists
	Open mindedness	Can handle criticism in a positive way

Skills for a succesful graduation journey

- Effective communication (with daily supervisor, professor, company supervisor, peers)

- Progress and meeting reporting

- Time management (setting up planning, following schedule, maintaining overview…)

- Knowledge of research methodologies

- Autonomy, responsibility, taking initiative, ownership

- Giving and receiving feedback

- Scientific writing and presenting

- Dealing with expectations of yourself and the supervisor

- Managing stress and anxiety

- Maintaining motivation

- ….?

Intermezzo

- **Which groups are here today?**

- **Is every student part of a group?**

- **Get to know each other better!**

Skills: Reflect, share and discuss

5 min: Individually reflect on your **strengths, challenges and resources**.

20 min: Share in the group and reflect together. Also share **resources** that you use or may use to tackle these challenges.

[On template provided]
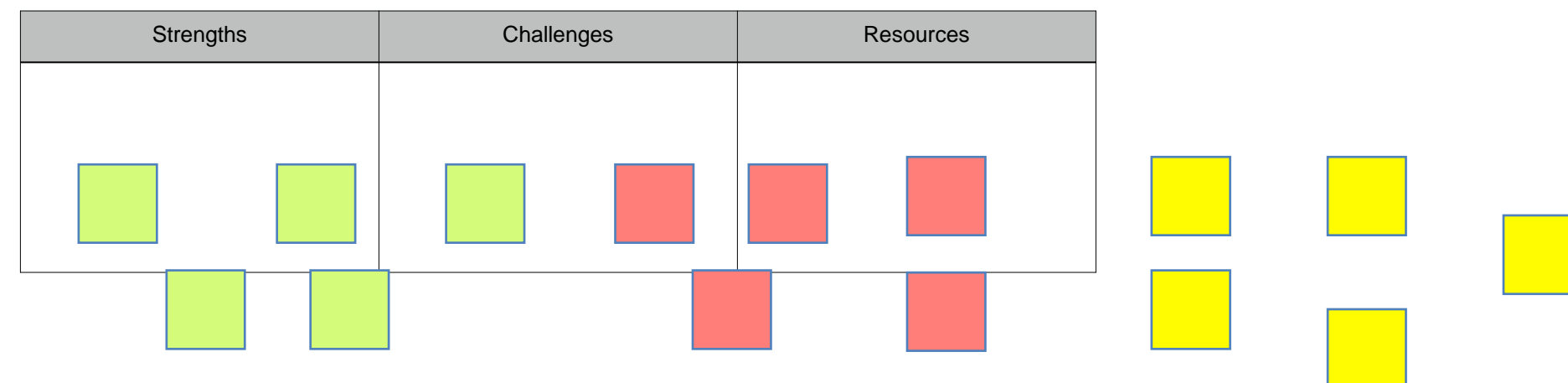
Skills: Reflect, share and discuss

10 more minutes!

It's time to wrap up the discussion and make plans!
Some ideas:

- Which challenges are you going to give attention first, and how?

- What will be your next step? Prioritize, make a plan and share in the group.

- Find a buddy for support!

Skills: Reflect, share and discuss

• Any new strengths you were not aware of?

• Which challenges are the most common in the group?

• Interesting resources? Let us know!

• Complementary strengths/challenges in the group? Help each other!

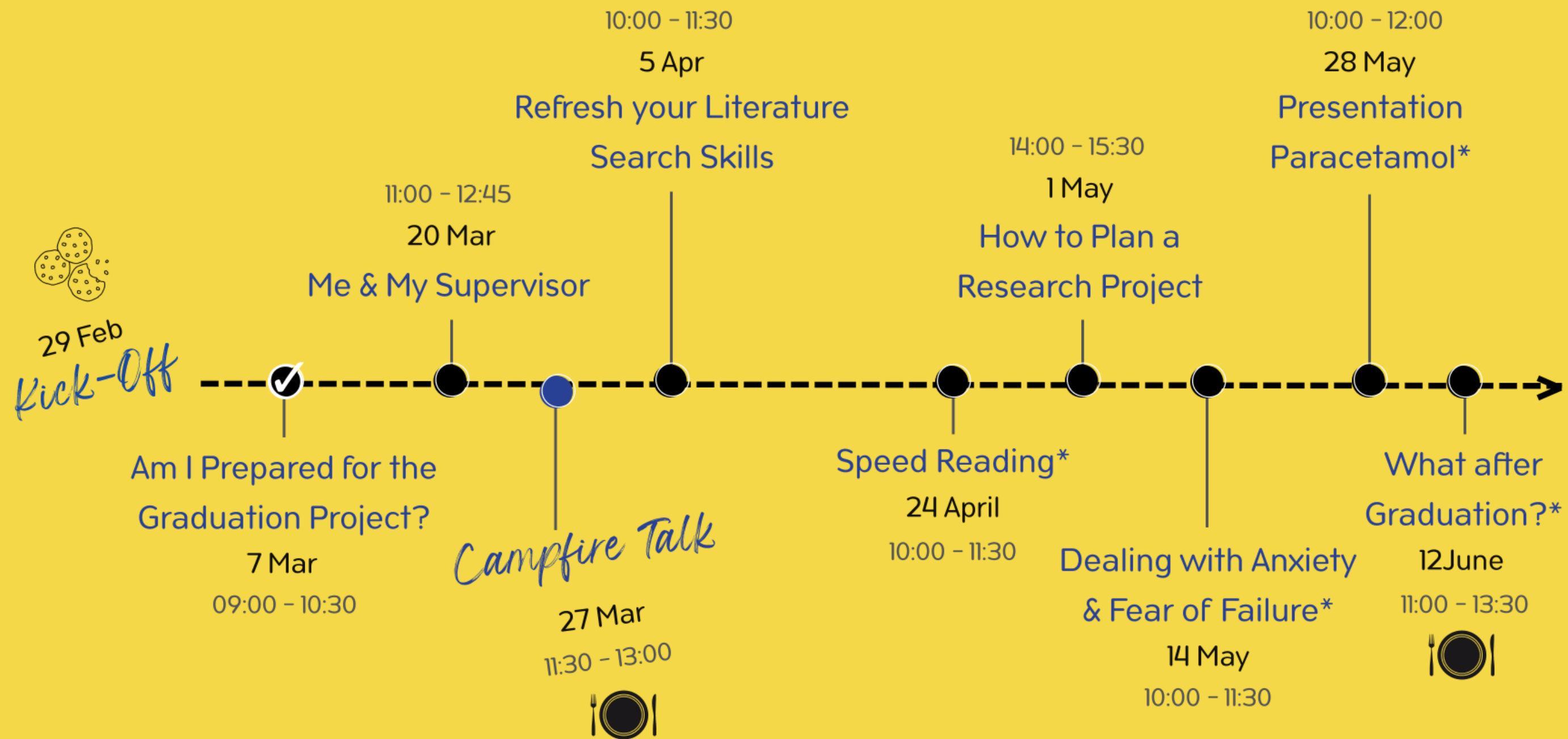• Sharing the same challenge? Make a plan and do it together!

Resources (1)

- **Brightspace page(s) for your MSc track or for the thesis project**
- **Rubrics and forms on the ME student portal**
- **Writing Centre TU Delft**
- **Information literacy programmes TU Delft Library:**
  - ✓ **Information Skills MSc**
  - ✓ **Searching Resources**
- **Learn from your peers: attend presentations and colloquia, do some benchmarking, find students working on related projects**
- **Make the best use of your supervisors: ask questions, prepare for meetings and keep notes**

Resources (2)

- Workshops and courses by C&CS (Career & Counselling Services)

- Via Studentportal > "**Academic and Career Counselling**"

  Monthly mailing with flyer and information

- E-health **Tool** and 1-on-1 consultations with psychologist or career counsellor

- Studentportal > **Well-being and Study** Support, Tips, Tools & Activities

- … Add your own personal resources here! Please share!

- **Upcoming Journey Sessions** in this programme

Programme Timeline

29 Feb
Kick-Off

7 Mar
Am I Prepared for the
Graduation Project?
09:00 – 10:30

11:00 – 12:45
20 Mar
Me & My Supervisor

27 Mar
Campfire Talk
11:30 – 13:00

10:00 – 11:30
5 Apr
Refresh your Literature
Search Skills

24 April
Speed Reading*
10:00 – 11:30

14:00 – 15:30
1 May
How to Plan a
Research Project

14 May
Dealing with Anxiety
& Fear of Failure*
10:00 – 11:30

10:00 – 12:00
28 May
Presentation
Paracetamol*

12 June
What after
Graduation?*
11:00 – 13:30

*Session open to all ME graduation communities; not limited to your graduation community

The Graduation Journey

What will be your next steps after this session?

Which challenges are you going to tackle first? Prioritize!

Share your plans and find support in your group

Inspire yourself and others!

What's next?

Journey Session 2

Me & My Supervisor

📅 20 March 🕐 11:00 – 12:45 📍 ME: Hall J

Questions ?