

TU-E2090 Research Assignment in Operations and Service Management

RESPONSIBLE TEACHER: TBA

ASSIGNMENT INSTRUCTORS: All OMS professors and postdocs

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WHAT IS THIS COURSE ABOUT?

When you need to investigate a managerial problem in order to make a decision, can you trust your findings? How can you design a study to produce systematic and trustworthy results to support decision making in organizations? What kind of conclusions and judgments can you make based on the results? When you have read your course books, journal articles, browsed consultant reports or research summarized in newspapers, have you ever wondered what kind of research and evidence the conclusions are based on? What is the evidence backing up various managerial frameworks and commonly accepted best practices that you have learned about during your studies?

This course develops your understanding about the fundamentals of research design, how to produce and interpret research results, and what is the credibility of empirical evidence, and how to ensure the credibility of the results.

The research assignment is an empirical research project in the field of Operations and Service Management done individually or in small groups. It is part of the methodological studies for the MSc degree and in general aims to help you to conduct your Master's thesis work so that it meets the required academic standards. This includes learning the relevant "knowledge and skills needed to apply scientific knowledge and scientific methods" (degree regulations, emphasis added) in the field of Operations and Service Management.

The main idea is that you will learn the process of reasoning in academic research; how an academic argument is built; and how the empirical data (together with the related theory) is used to back up the claim. This allows you to improve your ability to understand what makes empirical research credible when judged against academic standards, giving you one benchmark to evaluate empirical research in general. In other words, the focus is not only on learning a set of tools for carrying out a specific type of research but also learning frameworks for assessing and evaluating empirical research, developing understanding of the "big picture" as well as issues that can be threat to the credibility of the study.

In addition, during the course you will learn fundamentals of research usable in the business and society. Even if you choose a career outside academia, professional knowledge workers often need to conduct more or less formal research to analyze managerial situations to facilitate decision making, to solve problems, and to design effective solutions. Furthermore, understanding the reasoning process allows you to be a more conscious consumer of empirical research – be it done by practitioners or academics.

FOR WHOM IS THIS COURSE?

This course is primarily intended for Master's students taking the Operations and Service Management Major AND are in the final phase of their studies. Other targeted students are the students from other departments who have the course included in their Major curriculum or are taking OSM courses as Minor subject.

The ideal time to do the Research Assignment is to finish it just before you start doing your Master's thesis. We do not recommend that you take this course unless you have completed some (or preferably the majority) of the basic subject courses that are included in your Major

or Minor; to be able to do your Research Assignment you need to understand the related Operations and Service Management research and managerial challenges.

WHEN IS THIS COURSE ARRANGED?

You have a chance to start the research assignment after completing a set of lectures and associated weekly exams. The lectures are offered twice a year, in the beginning of the fall and spring semesters. The introductory session addresses the practicalities of the course and some fundamental issues regarding reasoning in scientific research. The aim of the lectures then (together with related readings and associated weekly exam) is to develop your understanding of how to do the research assignment. We also discuss the design of case studies and qualitative research and introduce the key issues in collecting data and doing analysis. Therefore, you are supposed to take the lectures before you start your research assignment.

The schedule will be updated on MyCourses.

THE PROCESS OF CONDUCTING A RESEARCH ASSIGNMENT

ENROLLMENT

We may have to limit the number of participants. If you are studying in DIEM or Information networks, or the course is compulsory for you according to a study guide you are following, you are allowed to attend. However, you need to enroll via MyCourses before the course begins. If the course is not compulsory for you (and you are not a DIEM or Information Networks student), please drop a line to the course instructors and briefly state your background, motivation, and qualifications to take this course.

LECTURES

Please note that attending the lectures is critical in order to conduct the research assignment successfully. All sessions have required pre-readings and post-class exam questions. The exam has five separate weekly post-class parts, which means you need to participate in the lectures to succeed in the exam.

- Attending the lecture means that you are present in the session, have read the set of pre-readings before the session, and understand their content well enough to be able to discuss it.
- After the lecture, you will need to answer few take-home exam questions and return your responses the day before the following lecture (e.g., 23:59 pm on Tuesday at the latest if the class is on Thursday). Late submissions are allowed but penalized for 1 grade point per question.

Pre-reading materials and post-class exam questions will be posted on MyCourses.

FINDING A TOPIC

The second part of the first lecture will provide detailed information on how the assignment is conducted in the Operations and Service Management Major. Each Major has a different approach on the assignment, so carefully follow the instructions provided by the TU-E2090 course staff, this brochure and the MyCourses pages.

The aim of the assignment is to facilitate learning of how to conduct empirical research work related to on a managerial challenge. In the latter half of the first lecture session we will provide detailed instructions on how to design your research assignment. We expect you to proactively find a topic and contact an organization (or researchers working on the topic of your interest) to conduct your assignment with. It is important that you understand what the topic is really about and what the related requirements are before you commit yourself to take it. In addition, before you commit to a topic given by an organization, someone from the teaching staff needs to confirm its appropriateness as the course assignment.

The topic should have both some theoretical and practical interest and be related to the field of Operations and Service Management. You are responsible for finding who is willing to guide you in the work; you need to have a contact person in the company and find a supervisor at DIEM. While doing the research assignment in a company you need to understand the requirements of the course assignment. It is important to identify the interests of the company client and the academic requirements of the course. If these are in conflict, you will probably need to do different reports and additional work. To address this problem, it is best to listen the research topic suggested by the company and then contribute your ideas on how to design the assignment to reach the required level of rigor. If you are employed, we encourage you to seek a topic that relates to your work. In any case, the project has to be conducted in line with to academic criteria, designed in advance and have a research question of some theoretical interest. (If you need to get credits based on past work or the reports you did during your previous summer jobs, consult your study guide how to get credits from practical training.)

We are open to the idea of writing your research assignment on a topic related to your Master's thesis or utilizing empirical data that you have already collected while writing your thesis. For instance, analyzing your data from a different perspective would be one possible option. However, there are some limitations:

- 1) Writing your research assignment on the topic related to your thesis should not conflict with your thesis in any way, causing extra work for the person who is guiding your thesis. Therefore, before proposing such a topic, please contact your thesis supervisor and make sure that s/he finds the arrangement acceptable. Having an acceptance from your thesis supervisor is necessary.
- 2) Please note that the norms of (self-)plagiarizing apply; you cannot use the same text both in your thesis and in your research assignment. Also, the research assignment cannot be a part of your thesis (e.g., you cannot expand research assignment into a thesis by adding some data).

- 3) The research problem must be related to the field of Operations and Service Management and have some theoretical interest.

Only basic elements of literature in the research assignment are required due to time limitations. A systematic or comprehensive review of a research field is not required but focal concepts need to be explained. The emphasis of the assignment is in learning about conducting empirical research; use of methodology literature relevant to selected research method is encouraged.

RETURNING A RESEARCH PLAN

You need to submit a research plan before beginning data collection. The objective of the research plan is to learn to prepare a research plan and also to serve the purpose of a feasibility check for your study. In case your planned approach has some serious methodological flaws, it is better to find that out before you spend much of your time in doing work that might turn out to be useless for your study.

It is effective and efficient to follow the generic structure of a published research paper when writing the research assignment. Sometimes students are asked to re-write a research assignment because the structure was not adequate and does not facilitate communicating the messages effectively. Moreover, using a published study from a high-quality journal as a "template" can serve as a checklist for what kinds of analyses need to be performed and reported. This is why you are required to choose one published empirical paper in a high-quality journal that you want to use as a "template" for your research assignment. Choose an article with research methodology similar yours.

The research plan does not have to follow any specific format or length. In general, 3-5 pages of text is enough. At the minimum, the research plan should include:

A) Deductive studies

1. Brief literature review on why this study is interesting in current literature (2-3 paragraphs are enough)
2. The specific Research Question
3. Justification of the Hypothesis (1/2 paragraph for each hypothesis)
4. Research design. Which data collection and analysis methods used?
5. Description of variables and measures
6. Identify one article you are going to use as a template
7. A schedule with milestones and preliminary dates for guidance sessions
8. Literature references

B) Inductive studies

1. Motivation for the study
2. Key concepts, very brief background on the topic
3. Research question(s)

4. Methodology
 - a. Research context, research design and unit of analysis
 - b. Data collection plan
 - c. Analysis plan
5. Identify one article you are going to use as a template
6. A schedule with milestones and preliminary dates for guidance sessions
7. Literature references

Please understand that the more detailed research plan you provide, the easier it is to assess and the more relevant comments you are likely to receive. Do not proceed to data collection or analysis until the supervisor from the organization and the course instructor have approved your research plan.

The deadline of the research plan will be announced during the first lecture and it is usually one month after the last lecture.

QUANTITATIVE STUDIES

Quantitative data needs to be analyzed statistically, which means that you will need to use statistical software like SPSS, Stata or R to do the analysis part. You can also use other software.

The course staff will provide hands on guidance on the use of statistical software during the guidance session.

There are many excellent tutorials on how to get started with Stata. For instance, first two chapters of the Web-book "Regression with Stata. UCLA: Academic Technology Services, Statistical Consulting Group." <http://www.ats.ucla.edu/stat/stata/webbooks/reg/default.htm> is a good starting point.

QUALITATIVE STUDIES: ATLAS.TI SOFTWARE

Atlas.ti software is a good default choice for your qualitative analysis. For a brief overview of Atlas.ti –features, please read the two-pager from Sage Qualitative Research Dictionary: <http://srmo.sagepub.com.libproxy.aalto.fi/view/the-sage-dictionary-of-social-research-methods/n8.xml>

Atlas.ti is available at Aalto University. Students and personnel can download it also to their home computers at Aalto Download. See the bottom of page at <https://download.aalto.fi/student/index.html>

STRUCTURE OF THE RESEARCH ASSIGNMENT

Because Research Assignments address very diverse topics, using different methods, there is no one right structure that suits all assignments. Qualitative and quantitative studies tend to emphasize different aspects in reporting empirical evidence. This is why you are encouraged to follow the structure of a scientific empirical article in your research assignment. This article

should be communicated with the research plan. If you decide to change the article you are building on, we need to approve the new article.

In order to identify the article, you can take a look at empirical research published in journals such as Journal of Operations Management, International Journal of Operations and Production Management, Journal of Supply Chain Management, Industrial Marketing Management, Journal of Service Research or Journal of Service Marketing during the past five years. Academy of Management Journal, Strategic Management Journal, and Organization Science are other journals where you can find good examples of very high quality empirical research.

Length of research assignments. We do read your research assignment when grading it, and we care about its rigor, not the length. Adding pages of nonsense or of-the-topic-text just to increase the number of pages is definitely not going to improve your grade. While the absolute maximum length of the report is 40 pages, we highly appreciate and encourage synthesized, compact writing.

GUIDANCE

You must find and secure a supervisor to your Research Assignment from one of the Operations and Service Management professors or postdocs. When you have a preliminary idea of a research topic, contact the professor or postdoc specializing in that research field. Follow this procedure:

1. First meet the company contact person to discuss the topic and to listen their interests and requirements. Pay attention to the scope of the assignment and the type of research problem and methodology. Consider this as an initial briefing and let them know you will brief them back about the details of the research design that best fit both needs (the course and the company).
2. Write down the main idea with a couple of lines or bullet points and agree on a meeting with your supervisor. Present the idea to the supervisor and discuss it together to make it fit the course requirements (i.e. how the more or less practice driven topic can be transformed into an academic mini-study).
3. Write a research plan and agree on it with your supervisor, revise if needed.
4. Contact the responsible person in the company and brief them about the research design. Note that the course requires an academic research report but results presented e.g. as a slide show might work better for the company.
5. Start the empirical work.

The supervisors and course instructors can help you if you want to discuss issues regarding research methods or the structure of your study at general level. The supervisors are also willing to comment one final draft of your research assignment before you send it to grading and provide you a short friendly review. Always agree on the schedule of review beforehand. Do not expect to receive any comments by one-day notice. Easiest way to get your proposed schedule accepted is to agree on it well beforehand at the research plan stage.

INDIVIDUAL VS. GROUP WORK

Work in pairs and small groups is allowed. OSM students may choose to work in a group of 3-4 with given data set (5 cr), or individually, in pairs, or in small groups with the data that they collect on their own (7 cr). If you work in a group or with a pair, you also need to submit roles and responsibilities of each group member and a log report of the work hours as well as meetings.

GRADING

The final grading will be a weighted average between post-class weekly exam questions and the written research assignment as well as a review report. The weights for the 5 cr course are as follows:

- 40% for the post-class questions (individual grade)
- 60% for the research assignment (individual or small group grade)
 - 50% for the research assignment report
 - 10% for review of another research assignment report

For the 7 cr course, the weights are:

- 35% for the post-class questions (individual grade)
- 65% for the research assignment (individual, pair, or small group grade)
 - 55% for the research assignment report
 - 10% for review of another research assignment report

Both the post-class questions and the research assignment will be assessed on a 0-5 scale. Grade will be round up if the decimal is the decimal is 0.5 or higher (e.g. 3.4 will be a 3 and 3.5 a 4).

Upon finishing the research report, a successful seminar presentation of the research assignment as well as submission of a review report of another assignment are required to complete the course. We also recommend arranging a meeting with your organization in which you brief the findings and that you also provide results in written form (e.g., a slide show material). Successful collaboration often facilitates gaining summer jobs, Master's thesis opportunities etc. so it makes sense to represent yourself and Aalto/DIEM as good as you can. Think about your audience – often the academic report is not the best way to communicate with practitioners, but you can provide it as an attachment material.

The grading will be based on the merits of the research assignment in the field of Operations and Service Management research. The grading is done by the supervisor. The main question we ask is that are the claims made in the study credible, generated using a coherent methodological approach and supported empirically. We also pay attention to some related issues. A set of questions borrowed from Whetten (1989, p. 494) illustrates this:

Are the underlying logic and supporting evidence compelling? Are the author's assumptions explicit? Are the author's views believable? [...] Does the paper reflect seasoned thinking, conveying completeness thoroughness? Are multiple theoretical elements (What, How, Why, When-Where-Who) covered, giving the paper a conceptually well-rounded, rather than a

superficial, quality? [...] Is the paper well written? Does it flow logically? Are the central ideas easily accessed? Is it enjoyable to read? Is the paper long enough to cover the subject but short enough to be interesting?

Only the final version of the research assignment will be graded and we do not accept any resubmissions. In other words, if you receive, say, the grade 2, we do not allow you to resubmit a new improved version to be graded – we already did provide you a chance to get comments on an almost finished paper.

You should consider the submitted version as a chance to convince us that you can apply scientific knowledge and understand empirical research in the field of operations and service management. Even though we recommend that your research assignment report should follow a structure of scientific paper, there are some issues and differences that we emphasize in grading:

- The research assignment is an empirical assignment. Thus, the methods and conclusions parts will have the greatest impact on your grade. However, in order to get a top grade, there are expectations on the quality of theory part as well. The theory part does not need to be as extensive as in published papers; keep it lean but purposeful. We do not expect a full review of the relevant theories and research conducted on the topic. In the theory part we are going to check how you motivate your study (why your research question was worth studying in the first place), but we will be particularly careful in assessing how you define concepts, justify your claims and research design choices and, if appropriate, deduce the hypotheses.
- The results and conclusions section is an important part of your report. A proper report explains the meaning and contribution of the results, discussing their validity and reliability, and suggests managerial and/or research implications. (Company projects: focus on managerial implications; research projects: focus on research implications.)
- Resource limitations can have a role on how comprehensive and perfect data you must have. For instance, conducting 20 interviews in, say, 50 hours is not a feasible requirement, and if you have not reached saturation with 12 interviews, it is ok as long as you describe how the rest of the observations would have been acquired, and also understand the related limitations. This does not mean that conducting one short interview and making up the rest is acceptable. However, the point is that not everything can be anticipated, there can be factors that you cannot control, and it will be taken into account in grading (given you had a reasonable effort and plan in data collection). We will help you to adjust research assignment topics so that the workload required by data collection and analysis would stay reasonable. Talk to the course teacher and/or your supervisor.
- Should you work with a pair or in a group, a broader approach is expected, as more working hours are put to one research assignment.
- If you have done your research assignment properly but end up having null results (e.g. statistically non-significant findings in quantitative study), that is perfectly acceptable and it does not have any negative impact on the grade – given that you can interpret those results properly.

- We will allow you a lot of flexibility for the limitations section. Identifying the limitations that you have in your study and being able to discuss how those affect results and what follows is an acceptable way to show that you do understand how to apply knowledge and use methods properly.

ABSOLUTELY NO PLAGIARISM

The policy regarding plagiarism is very simple: there is absolutely zero tolerance for plagiarism. If you submit

- 1) any work that contains intentionally plagiarized text (including self-plagiarized text, i.e. work that you have submitted yourself previously for example as a course assignment) or,
- 2) more than once submit work that contains any plagiarized text,

then the default action is that you will automatically fail the course. Please note that in addition to weekly exam submissions and final report, this rule also applies to the versions sent in for comments because we really do not want to waste our time on commenting plagiarized text. We enforce the rule with plagiarism detection software. It is your responsibility to make sure that you do not plagiarize anything even unintentionally.

Following a proper referencing style is important so that the reader can be certain which parts of the work are a) based on your own ideas instead of someone else's ideas, and b) are your own writing instead of someone else's writing. When you choose to use ideas or information that you have taken from an outside source, you always need to give credit to the original author by citing the original work. Note that citing and quoting are two different things.

If or when you choose to use text that is copied from an outside source, you need to tell that explicitly to the reader so that one can know which part of the text is actually written by you. This is done by including such text inside quotation marks and providing a citation to the original work including the page number where the quoted text appears in the original work. In other words, if you take a full sentence (or even half a sentence) directly from the original, it is not enough to just cite the original work; you must include the text that is a direct copy inside the quotation marks. Including only the citation means that you are claiming to the reader that the idea is from the original source but you have written the text yourself using your own words, which is deceiving (i.e. you do credit the original idea but fail to credit the original writing). Such writing style is considered plagiarism.

Use quotation marks and references properly if (or when) you choose include text from other sources. See, for instance

<http://unitproj.library.ucla.edu/col/b Bruinsuccess/03/01.cfm>

or

<https://plagiarism.duke.edu/>

if you are unsure what is considered plagiarism and what is not. In addition, see Aalto Code of Ethics

<https://into.aalto.fi/display/enregulations/Aalto+University+Code+of+Academic+Integrity+and+Handling+Violations+Thereof>.

KEEPING THE DEADLINES

All deadlines will be given during the first lecture. You will have a deadline for the research plan in order to ensure that all groups get started with their projects. Also, there is a deadline for your research assignment: you can complete the course in two semesters (e.g., if you start in September, deadline for submitting (1) the research assignment and (2) the research review is in December) or if you want to extend the study period, the assignment must be completed in the end of third study period (i.e. if you start in period 1 you must finish by the end of 3rd period). If the organization you work with influences your schedule, contact the supervisor in the research planning phase to agree on a different schedule. Seminars are arranged towards the end of the second and third study period after the kick off.

The final deadline is strict unless explicitly agreed otherwise at the time of the research proposal submission. If you exceed the deadline, your assignment report grade will be automatically penalized by 1 grade.

REFERENCES

Whetten, D.A., 1989. What Constitutes a Theoretical Contribution? *The Academy of Management Review*, 14(4), pp.490–495.