

Syllabus

Research Seminar (2 year)

(9 ECTS)

Approved by
Academic Council
of the Master's Programme
Minutes 05122017/AC1

Author, lecturer:

Ekaterina Streltsova, kstrelrsova@hse.ru, <https://www.hse.ru/en/staff/streltsova>

1. Course Description

The course is delivered to master students of The National Research University Higher School of Economics. It is delivered in two modules. The course length is 342 academic hours in total of which 64 hours are class room hours for lectures and seminars and 278 hours are devoted to self study.

a. Pre-requisites

- Basics of scientific research design and methodology;
- Analytical abilities and critical thinking;
- Preliminary ideas on MTRP.

b. Abstract

The course is divided into four blocks. The first includes a series of seminars discussing the key steps of research project development and planning: research topic identification and problematization, research questions and hypotheses formulation, writing a comprehensive literature review, etc. The second block is fully dedicated to the research methods mainly used by the Master Program students for their research projects: survey, interview, case study, secondary statistical data analysis. The third part of the course has no classroom activities, except individual consultations provided on request. This time is fully given to students writing MTRPs under supervision. Finally, the fourth block is a series of MTRPs oral defenses (in groups).

The academic control is based on one written peer-review, MTRP, and written exam.

2. Learning Objectives

- To provide students with practical knowledge and abilities necessary for successful MTRP development and defense and further realization of research projects;
- To broaden students' knowledge on social studies research methods;
- To train students' analytical and critical thinking abilities.

3. Learning Outcomes

As a result of the course students will be able:

- To identify current trends and relevant research problems in the field of STI management, to summarize and assess previous research results;
- To develop research design and to plan its realization;
- To collect and analyze empirical data according to research objectives and questions;
- To use the key quantitative and qualitative research methods properly;
- To formulate and test research hypotheses, to present and substantiate research results;
- To write and present reviews, research proposals, and academic papers.

4. Course Plan

| Chapter | Topic |
|--|---|
| Introduction | Introduction to the course |
| | Master thesis guidelines and regulations |
| | Current global agenda on STI: analysis of the field |
| | Designing research portfolio in research institutes: evidences from HSE ISSEK |
| 1. Research project design and realization | 1.1 Identification of a research problem: techniques and approaches |
| | 1.2 The key elements of research: questions / hypotheses / goals |
| | 1.3 Writing academic text: structure, key elements and features |
| 2. Research methods | 2.1 Research methodologies and logics of method selection |
| | 2.2 Survey research |
| | 2.3 Interview |
| | 2.4 Sample |
| | 2.5 Case study |
| | 2.6 Documents analysis |
| | 2.7 Interpretation of quantitative and qualitative research results |

| | |
|---|---|
| | 2.8 Official statistics: information sources, interpretation and presentation |
| 3. Master thesis research proposal: <i>writing</i> | Writing MTRP |
| 4. Master thesis research proposal: <i>oral defense</i> | 4.1 Development of MTRP presentation |
| | 4.2 Research proposal oral defense |

Program content

1. Introduction to the course

Basic guidelines and requirements of the course. Schedule and deadlines. Academic control. Criteria for written papers evaluation.

Students are welcomed to share their aspirations and research interests and questions, which are needed to be discussed at the course.

No readings are required.

2. Master thesis guidelines and regulations

Master thesis: format, content, structure, volume. Supervisor and advisor roles and responsibilities. Schedule for interaction with supervisor. Master thesis submission guidelines. Master thesis reviews: supervisor and blind reviewer. Defense Committee Session: decision-making and timing.

Optional readings:

- NRU HSE ISSEK (2015) Requirements for Course Work / Master Thesis. URL: <https://www.hse.ru/data/2016/05/12/1128936986/General%20requirements%20for%20Course%20work%20and%20Master%20thesis.pdf> (accessed: 10.06.2018).
- NRU HSE ISSEK (2015) Assessment Sheet – Course Work / Master Thesis. URL: <https://www.hse.ru/data/2016/01/18/1135143384/Appendix.pdf> (accessed: 10.06.2018).

3. Current agenda in STI studies: the analysis of the field

Key research areas and emerging topics. Current challenges.

Required readings:

- Martins B.R. (2016) Twenty challenges of innovation studies // Science and Public Policy. Vol. 43(3), pp. 432 – 450.

Optional readings:

- OECD (2016) OECD Science, Technology and Innovation Outlook: Megatrends affecting science, technology and innovation. Paris.
- Martin B.R., Nightingale P., Yegros A. (2012) Science and technology studies: exploring the knowledge base // Research Policy. Vol. 41 (7), pp. 1182-1204.

4. Designing research portfolio in research institutes: evidences from HSE ISSEK

Presentation of HSE ISSEK key research areas and achievements.

No readings are required.

5. Identification of a research problem: techniques and approaches

Research topic, title and problem. Research problem isolation, structuring and magnification. Brainstorming. Mind-mapping, argument mapping.

Required readings:

- Ellis T.J., Levy Y. (2008) Framework of problem-based research: a guide for novice researchers on the development of a research-worthy problem // Informing Science. Vol.11, pp.17-33.

Optional readings:

- Cargill M. and O'Connor P. (2013) Writing Scientific Research Articles: Strategy and Steps. New Jersey: John Wiley & Sons, Inc. – pp. 43-73.
- Davies M. (2011) Concept mapping, mind mapping and argument mapping: what are the differences and do they matter? // Higher Education. Vol. 62, No. 3, pp. 279-301.

6. The key elements of research: questions / hypotheses / goals

The key requirements to these elements of research. Types and features.

Optional readings:

- Organizing Your Social Sciences Research Paper: Research Guide. University of Southern California. URL: <http://libguides.usc.edu/writingguide> (accessed: 10.06.2018).

7. Research methodologies and logics of method selection

Characteristics of qualitative, quantitative and mixed research. Factors influencing the process of methodology selection: research objectives, focus, nature of study, type of data and data analysis.

Optional readings:

- Jemna L.M. (2016) Qualitative and mixed research methods in economics: the added value when using qualitative research methods // Journal of Public Administration, Finance and Law. Issue 9, pp. 154-167.
- Pole K. (2007) Mixed Method Designs: A Review of Strategies for Blending Quantitative and Qualitative Methodologies // Mid-Western Educational Researcher. Vol. 20, No. 4, pp. 35-38.
- Cresswell J.W. (2009) Research Design. Qualitative, Quantitative and Mixed Methods Approaches. London: SAGE Publications.

- Fox B.H. and Jennings W.G. (2014) How to Write a Methodology and Results Section for Empirical Research // Journal of Criminal Justice Education. Vol. 25, No. 2, pp. 137-156.

8. Survey research

Aims and objectives of survey research. Advantages and limitations. Conceptualization. Operationalization. Key guidelines for development of questionnaires, questionnaire design. Types of questions and answers in research survey. Scales. Questionnaire testing. Organization of online-survey. Response rate.

Required readings:

- Rowley J. (2014) Designing and using research questionnaires // Management Research Review. Vol. 37, Issue 3, pp. 308-330.

Optional readings:

- Lietz P. (2008) Questionnaire Design in Attitude and Opinion Research: Current State of an Art. Working paper. URL: http://www.priorisierung-in-der-medizin.de/documents/FOR655_Nr13_Lietz.pdf (accessed: 10.06.2018).
- International Handbook of Survey Methodology // ed. by Leeuw D., Hox J., Dillman D. The European Association of Methodology, 2008.
- Bradburn N., Sudman S., Wansink B. Asking questions: The Definite Guide to Questionnaire Design – for Market Research, Political Polls, and Social and Health Questionnaires. San-Francisco: Jossey-Bass, 2004.

9. Interview

Structured and semi-structured interview. Focus group. Criteria for respondents selection. Recruitment of respondents. Preparation for and organization of interview.

Required reading:

- Adams A., Cox A. L. (2008). Questionnaires, in-depth interviews and focus groups. In: Cairns P. and Cox A. L. (eds.) Research Methods for Human Computer Interaction. Cambridge, UK: Cambridge University Press, pp. 17–34.

Optional readings:

- Barbour R. and Schostak J. (2005) Interviewing and focus groups. In B. Somekh and C. Lewin (eds.) Research Methods in the Social Sciences. London: SAGE.

10. Sample

Population. Sampling frame. Random and non-random selection methods.

Optional readings:

- Watt J., Van der Berg S. (1995) Research Methods for Communication Science. Chapters 6, 9. Boston: Allyn & Bacon.
- How many qualitative interviews is enough? Expert voices and early career reflections on sampling and cases in qualitative research // Baker S.E., Edwards R. (eds.). URL:

http://blog.soton.ac.uk/dissertation/files/2013/09/how_many_interviews.pdf
10.06.2018).

(accessed:

11. Case study

Advantages and limitations of case study. Comparative case study. Cases selection.

Required readings:

- Yin R. (2014) *Case Study Research: Design and Method*. 2nd edition. London: SAGE Publications.
- Huyghe A., Knockaert M., Wright M., Piva E. (2014) Technology transfer offices as boundary spanners in the pre-spin-off process: the case of a hybrid model // *Small Business Economics*. Vol. 43, No. 2, pp. 289-307.

Optional readings:

- Gerring J. (2007) *Case Study Research: Principles and Practices*. Cambridge: Cambridge University Press.
- Hammersley M. (1990) What's wrong with ethnography? The myth of theoretical description // *Sociology*, Vol. 24, No. 4, pp. 597-615.
- Thomas G. (2011) A typology for the case study in social science following a review of definition, discourse, and structure // *Qualitative Inquiry*, Vol. 17(6), pp. 511-521.
- Seawright J., Gerring J. (2008) Case Selection Techniques in Case Study Research. A Menu of Qualitative and Quantitative Options // *Political Research Quarterly*. Vol. 61, No. 2, pp. 294-308.

12. Document analysis

Document analysis as a method of qualitative research, its advantages and limitations. Rationale and major steps.

Required readings:

- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*. Vol. 9(2), pp. 27-40.

Optional readings:

- Atkinson P. A., Coffey A. (2004) Analysing documentary realities // In: Silverman D. (Ed.) *Qualitative research: Theory, method and practice* (2nd ed.). London: Sage. – Pp. 56-75.

13. Official statistics

Statistics of STI: information sources. Interpretation of data. Results presentation and discussion.

Students' group presentations on:

- 1) R&D funding in Russia: scope and sources;
- 2) R&D personnel: population and structure;
- 3) R&D outputs of Russian science: publications and patents;

Presentations' topics are distributed one week before the RS. To prepare, students are free to use any of the recommended publications and datasets as well as other information available. Presentation should include: - description of data source; - list of main indicators being used; - evidences of statistical analysis; - conclusions.

Optional readings:

- OECD (2016, 2014). OECD Science, Technology and Industry Outlook.
- Main Science and Technology Indicators (database). URL: http://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB (accessed 10.07.2017).
- Индикаторы науки: 2017: статистический сборник / Ю.Л.Войнилов, Н.В.Городникова, Л.М.Гохберг и др. Москва: НИУ ВШЭ, 2017. (in Russian)

14. Interpretation of quantitative and qualitative research results

Basics of quantitative analysis. Descriptive statistics. Correlation and regression analysis. Presentation of quantitative research results.

Preparation and primary description of qualitative data. Coding, categorization. Qualitative data analysis software. Presentation of qualitative research results. Typical mistakes of qualitative analysis.

Required readings:

- Barrat P. (2017) Healthy competition: A qualitative study investigating persuasive technologies and the gamification of cycling // Health and Place. Vol. 46, pp.328-336.

OR:

- Sharone O. (2017), LinkedIn or LinkedOut? How Social Networking Sites are Reshaping the Labor Market // in Vallas S. (ed.) Emerging Conceptions of Work, Management and the Labor Market. Research in the Sociology of Work. Vol. 30. Emerald Publishing Limited, pp.1-31.

Optional readings:

- Miles M.B. and Huberman M. (1994) Qualitative Data Analysis: An Expanded Sourcebook (2nd edn). London: SAGE.
- Shafer D., Zhang Z. (2013) Introductory Statistics. Washington: Flat World Knowledge.

5. Reading List

a. Required

- Adams A., Cox A. L. (2008). Questionnaires, in-depth interviews and focus groups. In: Cairns P. and Cox A. L. (eds.) Research Methods for Human Computer Interaction. Cambridge, UK: Cambridge University Press, pp. 17–34.
- Barrat P. (2017) Healthy competition: A qualitative study investigating persuasive technologies and the gamification of cycling // Health and Place. Vol. 46, pp.328-336.

- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*. Vol. 9(2), pp. 27-40.
- Ellis T.J., Levy Y. (2008) Framework of problem-based research: a guide for novice researchers on the development of a research-worthy problem // *Informing Science*. Vol.11, pp.17-33.
- Huyghe A., Knockaert M., Wright M., Piva E. (2014) Technology transfer offices as boundary spanners in the pre-spin-off process: the case of a hybrid model // *Small Business Economics*. Vol. 43, No. 2, pp. 289-307.
- Martins B.R. (2016) Twenty challenges of innovation studies // *Science and Public Policy*. Vol. 43(3), pp. 432 – 450.
- Rowley J. (2014) Designing and using research questionnaires // *Management Research Review*. Vol. 37, Issue 3, pp. 308-330.
- Sharone O. (2017), LinkedIn or LinkedOut? How Social Networking Sites are Reshaping the Labor Market // in Vallas S. (ed.) *Emerging Conceptions of Work, Management and the Labor Market*. Research in the Sociology of Work. Vol. 30. Emerald Publishing Limited, pp.1-31.
- Yin R. (2014) *Case Study Research: Design and Method*. 2nd edition. London: SAGE Publications.

b. Optional

- Atkinson P. A., Coffey A. (2004) Analysing documentary realities // In: Silverman D. (Ed.) *Qualitative research: Theory, method and practice* (2nd ed.). London: Sage. – Pp. 56-75.
- Barbour R. and Schostak J. (2005) Interviewing and focus groups. In B. Somekh and C. Lewin (eds.) *Research Methods in the Social Sciences*. London: SAGE.
- Bradburn N., Sudman S., Wansink B. *Asking questions: The Definite Guide to Questionnaire Design – for Market Research, Political Polls, and Social and Health Questionnaires*. San-Francisco: Jossey-Bass, 2004.
- Cargill M. and O'Connor P. (2013) *Writing Scientific Research Articles: Strategy and Steps*. New Jersey: John Wiley & Sons, Inc. – pp. 43-73.
- Cresswell J.W. (2009) *Research Design. Qualitative, Quantitative and Mixed Methods Approaches*. London: SAGE Publications.
- Davies M. (2011) Concept mapping, mind mapping and argument mapping: what are the differences and do they matter? // *Higher Education*. Vol. 62, No. 3, pp. 279-301.
- Fox B.H. and Jennings W.G. (2014) How to Write a Methodology and Results Section for Empirical Research // *Journal of Criminal Justice Education*. Vol. 25, No. 2, pp. 137-156.

- Gerring J. (2007) *Case Study Research: Principles and Practices*. Cambridge: Cambridge University Press.
- Hammersley M. (1990) What's wrong with ethnography? The myth of theoretical description // *Sociology*, Vol. 24, No. 4, pp. 597-615.
- How many qualitative interviews is enough? Expert voices and early career reflections on sampling and cases in qualitative research // Baker S.E., Edwards R. (eds.). URL: http://blog.soton.ac.uk/dissertation/files/2013/09/how_many_interviews.pdf (accessed: 10.06.2018).
- *International Handbook of Survey Methodology* // ed. by Leeuw D., Hox J., Dillman D. The European Association of Methodology, 2008.
- Jemna L.M. (2016) Qualitative and mixed research methods in economics: the added value when using qualitative research methods // *Journal of Public Administration, Finance and Law*. Issue 9, pp. 154-167.
- Kvale, S. (1996) *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage Publications.
- Lietz P. (2008) *Questionnaire Design in Attitude and Opinion Research: Current State of an Art*. Working paper. URL: http://www.priorisierung-in-der-medizin.de/documents/FOR655_Nr13_Lietz.pdf (accessed: 10.06.2018).
- *Main Science and Technology Indicators* (database). URL: http://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB (accessed 10.07.2017).
- Martin B.R., Nightingale P., Yegros A. (2012) Science and technology studies: exploring the knowledge base // *Research Policy*. Vol. 41 (7), pp. 1182-1204.
- Miles M.B. and Huberman M. (1994) *Qualitative Data Analysis: An Expanded Sourcebook* (2nd edn). London: SAGE.
- NRU HSE ISSEK (2015) *Assessment Sheet – Course Work / Master Thesis*. URL: <https://www.hse.ru/data/2016/01/18/1135143384/Appendix.pdf> (accessed: 10.06.2018).
- NRU HSE ISSEK (2015) *Requirements for Course Work / Master Thesis*. URL: <https://www.hse.ru/data/2016/05/12/1128936986/General%20requirements%20for%20Course%20work%20and%20Master%20thesis.pdf> (accessed: 10.06.2018).
- OECD (2016) *OECD Science, Technology and Innovation Outlook: Megatrends affecting science, technology and innovation*. Paris.
- OECD (2016, 2014). *OECD Science, Technology and Industry Outlook*.
- *Organizing Your Social Sciences Research Paper: Research Guide*. University of Southern California. URL: <http://libguides.usc.edu/writingguide> (accessed: 10.06.2018).

- Pole K. (2007) Mixed Method Designs: A Review of Strategies for Blending Quantitative and Qualitative Methodologies // Mid-Western Educational Researcher. Vol. 20, No. 4, pp. 35-38.
- Seawright J., Gerring J. (2008) Case Selection Techniques in Case Study Research. A Menu of Qualitative and Quantitative Options // Political Research Quarterly. Vol. 61, No. 2, pp. 294-308.
- Shafer D., Zhang Z. (2013) Introductory Statistics. Washington: Flat World Knowledge.
- Thomas G. (2011) A typology for the case study in social science following a review of definition, discourse, and structure // Qualitative Inquiry, Vol. 17(6), pp. 511-521.
- How to Do Your Case Study – A Guide for Students and Researchers. London: SAGE.
- Watt J., Van der Berg S. (1995) Research Methods for Communication Science. Chapters 6, 9. Boston: Allyn & Bacon.
- Индикаторы науки: 2017: статистический сборник / Ю.Л.Войнилов, Н.В.Городникова, Л.М.Гохберг и др. Москва: НИУ ВШЭ, 2017. (in Russian)

6. Grading System

Final grade = 30% Peer-review + 20% MTRP + 20% Colloquium + 30% Written exam

Summary Table: Correspondence of ten-point to five-point system's marks

| Ten-point scale [10] | Five-point scale [5] |
|---|----------------------|
| 1 – unsatisfactory 2 – very bad 3 – bad | Unsatisfactory – 2 |
| 4 – satisfactory 5 – quite satisfactory | Satisfactory – 3 |
| 6 – good 7 – very good | Good – 4 |
| 8 – nearly excellent 9 – excellent 10 – brilliant | Excellent – 5 |

After summing up the points for all the control forms, final grade will be rounded up (calculated for student).

7. Course Assignments

a) Peer-review¹

¹For formatting, follow the Requirements for TP / MT (see III, IV in: <https://www.hse.ru/data/2018/04/03/1164835409/General%20requirements%20for%20Term%20Paper%20and%20Master%20thesis-2018.pdf>).

Students are required to write individual peer-reviews for master theses submitted earlier by former Master Program graduates. Four master theses are distributed for this purpose at the first seminar of the course. The task is designed to demonstrate the best practices used in master research and – on the contrary – the most typical mistakes made. It will also help students to understand clearly the criteria for master thesis evaluation and to develop their MPRPs and research plans accordingly.

Peer-review should follow the given structure:

1. Relationship to Topic and Literature.

- Short description and assessment of MT chapters
- Relevance of work to the chosen topic
- Demonstration of an adequate understanding of the relevant literature in the field and citation of an appropriate range of sources
- Relevance of research question to topic

2. Methodology and results

- Development of clear research questions and / or hypotheses
- Choice and application of well-reasoned research methods
- Correct use and employment of methods
- Development, presentation and justification of adequate conclusions from research
- Preparation of answers to the research questions raised in the paper

3. Quality of Communication

- Check if the MT uses the template provided
- Take into account that the thesis is 60 pages text not counting outline, bibliography, annex(es), list of tables and similar plus/minus 10 per cent
- Clear presentation and analysis of research results
- Look for correct numbering, logic of headings & sub headings (e.g. one sub-heading under a heading is not acceptable, at least 2 sub-headings need to be under a heading)
- Look at the use of references, e.g. check if all references cited in document are included in bibliography and vice versa
- Check if tables and figures are numbered and titles assigned, check if sources are provided for tables and figures
- Communication of ideas
- Provide an overall assessment of consistency and coherence of the MT argumentation
- Check if conclusions and summary relate to the main body of the MT
- Check if summary outlines the main body of the MT.

Peer-review should be 1.5 – 2.5 pp. long. Deadline for submission (*via e-mail, to the course director*) is announced at the first seminar.

For evaluation, peer-review structure, argumentation and demonstration of knowledge gained at the course are considered.

b) Master thesis research proposal (MTRP)*

MTRP is a brief introduction of a research project designed for a master thesis. It should include the following elements:

- Title;
- Introduction, including (preliminary) literature review and problem statement;
- Research questions and/or hypotheses;
- Aims and goals;
- Methodology (methods and techniques to be used, incl. explanation of the choice);
- Scientific and/or practical novelty/relevance of research;
- Time plan.

For a perfect evaluation, MTRP should meet the following criteria:

- Research topic is relevant for the field of STI management and appropriate for a master thesis research project;
- Research problem / motivation is clearly stated and reasoned;
- Research question(s) / aim(s) is reasonable, clearly formulated and can be answered / achieved as a result of a study;
- Preliminary literature review provides a sufficient background for the further study; a sufficient number of papers is critically analyzed;
- The methods chosen are appropriate and well-reasoned;
- The novelty of a project is explained;
- Research plan is feasible;
- The quality of argumentation is appropriate;
- The structure of MTRP follows the recommended template and includes all the required elements;
- The quality of communication (language, text coherence) is appropriate.

MTRP is evaluated by the course director and supervisor, the final grade is calculated as the average of the two. MTRP is not limited in volume, the minimum is 3 pp. Deadline for submission (*via e-mail, to the course director and supervisor*) is announced at the first seminar.

c) Colloquium

Colloquium is an oral defense of MTRP. It is graded by a commission of at least two faculty members according to the following criteria:

*For formatting, follow the Requirements for TP / MT (see III, IV in: <https://www.hse.ru/data/2018/04/03/1164835409/General%20requirements%20for%20Term%20Paper%20and%20Master%20thesis-2018.pdf>).

- Content: relevance and reasonability of MTRP elements (research problem, question and/or aims and goals, methods to be used, novelty and/or relevance of research);
- Quality of communication: communication of ideas, transparency of argumentation;
- Q&A's: capability to answer the questions.

Attendance of MTRPs defenses are obligatory for all students.

8. Examination Type – written examination

The written examination is designed to control students' knowledge gained at the course and includes two questions from the list of those discussed during the seminars and covered in the compulsory readings. The list of questions for the exam is provided at the last seminar of the Module 1. To prepare, students are recommended to consult with the teacher's presentations, required and optional readings, any other useful resources.

An answer to each question is evaluated on 10-point scale. The final grade is calculated as the average.

Students can be released from the examination by the course director as an encouraging for their engagement in class. The list of these students is announced at the last seminar of the Module 1.

9. Methods of Instruction

The research seminars are organized predominantly in the form of the moderated group discussions based on the academic publications preliminary read and analyzed. Some topics (survey research, sample, case study) are accompanied with the introductory teacher's presentations to help better understanding. In the course plan, there are two group tasks which are to be prepared at home and then presented and discussed in the classroom.

10. [HSE Library E-resources](#)

Students are encouraged to use HSE Library E-resources to search for and download the publications for the course, and to get additional materials to prepare for the written exam.

11. Software Support, including Open-Source Database Software

- Microsoft Windows 7 Professional RUS: internal university network (agreement)
- Microsoft Windows 10: internal university network (agreement)
- Microsoft Windows 8.1 Professional RUS: internal university network (agreement)
- Microsoft Office Professional Plus 2010: internal university network (agreement)

12. Special Equipment

Classrooms for lectures provide proper use and presentations of particular topics, specifically:

- PC with internet access and office software or laptop
- multimedia projector
- screen
- flipchart