RESEARCH METHODOLOGY

Number of credits: 4 ECTS

Course period: 1 semester / 1 class per week

Language of Instruction: English

Instructor: Olga Iakimova, Associate Professor, PhD

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Course description

The objective of the course is to prepare students for independent scientific research in the professional field. During its studies Master students are acquainted with the methodology of scientific research, the main features of the scientific methods; learn to use modern scientific methods to solve professional problems; acquire program-target method of solving scientific problems.

The course will be presented in lectures supplemented with PowerPoint presentations. Short questions, comments, and remarks from the students are welcome during the lecture. By the end of every lecture there will be a 10-12-minute period for questions and answers. In some cases, there will be a 10-12-minute role-play when students will be encouraged to speak on behalf of a certain theoretical perspective.

Prerequisites

Lectures, seminars, group presentation, mid-term exam, final Exam.

Course outline

Topic 1. Fundamentals of scientific research.

Topic 2. Methodology of research: the concept, content and function. Research programs in social sciences.

Topic 3. Scientific research: Principles of the scientific method.

Topic 4. Scientific research: The cycle of scientific thinking.

Topic 5. Methodology of research: construct validity

Topic 6. Methodology of research: internal validity

Topic 7. Methodology of research: internal validity

Topic 8. Methodology of research: external validity

Topic 9. Methodology of research: research designs

Topic 10. Methodology of research: quantitative methods

Topic 11. Methodology of research: qualitative methods

Final exam

Assignments

For each part of the course there will be an individual assignment to write a short paper addressing a specific question. The assignments will be graded and commented by the Instructor with one paragraph of comments.

Examination

Mid-term exam consists of a multiple choice test of 20 questions that deal with terms, ideas, and facts covered during the previous weeks and a short (not exceeding 250 words) written answer to one of two questions based on material covered within the previous weeks.

Group presentation: A PowerPoint (or Prezi, or OpenOffice) presentation of 20-25 slides prepared by a working group (depending on the number of students in the class but not more than four students in a group) on one of the issues covered in the course. The presentation will be followed by a Q and A session. Presenters are expected to demonstrate their use of theoretical and methodological tools discussed during the course for analysis of the subject of their presentation.

Final Exam consists of an open-ended test that requires short (1-3 sentences) responses to 20 questions based on the material covered within the course and a short academic essay (2,500 words) on one of three suggested topics.

Course evaluation

<table>
<tr><td>ECTS Grade</td><td>Points</td><td>Russian grade</td></tr>
<tr><td>A</td><td>100-91 points</td><td rowspan="2">“excellent”: 100–80 points</td></tr>
<tr><td>B</td><td>90-81</td></tr>
<tr><td>C</td><td>80-71</td><td rowspan="2">“good”: 79– 60 points</td></tr>
<tr><td>D</td><td>70-61</td></tr>
<tr><td rowspan="2">F: failed</td><td rowspan="2">less than 60 points: failed</td><td>“satisfactory”: 59–40 points</td></tr>
<tr><td>“unsatisfactorily”: failed, less than 40 points</td></tr>
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Core reading

1. История науки и техники : учебное пособие / [А. В. Бармин, В. А. Дорошенко, В. В. Запарий и др.] ; под ред. В. В. Запария ; Урал. гос.

техн. ун-т - УПИ, Ин-т образоват. информ. технологий, Фак. гуманитар. образования .— 3-е изд., испр. и доп. — Екатеринбург : УГТУ-УПИ, 2007 .— 253 с. : ил. ; 20 см .— Авт. указаны на обороте тит. л. — Библиогр. в конце гл., библиогр.: с. 194-197. — без грифа .— ISBN 978-5-321-01069-3.

2. Лешкевич, Татьяна Геннадьевна. Философия науки: традиции и новации : учебное пособие / Т. Г. Лешкевич .— Москва : ПРИОР : Экспертное бюро, 2001 .— 428 с. ; 20 см .— Библиогр.: с. 403-411. — без грифа .— ISBN 5-7990-0477-9 : 88.00.

3. Научное и вненаучное знание : Программы гуманит. спецкурсов по философии для студентов всех форм обучения всех специальностей / Урал. гос. техн ун-т; Сост. В.А. Антропов и др. ; Науч. ред. Г.В. Мокроносов .— Екатеринбург : УГТУ, 1993 .— 32с. — без грифа .

Recommended reading

4. Ясницкий, Леонид Нахимович. Современные проблемы науки : учеб. пособие для студентов вузов, обучающихся по группе мат. и мех. специальностей / Л. Н. Ясницкий, Т. В. Данилевич .— Москва : БИНОМ. Лаборатория знаний, 2008 .— 294 с. : ил. ; 22 см .— Библиогр.: с. 283-291 (157 назв.). — Рекомендовано в качестве учебного пособия .— ISBN 978-5-94774-774-4.