

Course ID: 305 (6cr.)

Class hours: Monday 14:10-15:25 lecture

Monday 15:35-16:50 Seminar Room

Office hours: Tuesday 10:50-12:05 AM, by appointment

Associate professor:

Orunbaev Sagynbek, Dr. Rer.nat.

PhD in Geophysics, MSc in Natural Disaster risk Management

E-mail: orunbaev_s@auca.kg

Tel: +996-(312)-350326

GENERAL DESCRIPTION

This course introduces and discusses approaches, strategies, and data collection methods relating to research in social sciences. Students will consider how to select the appropriate methodology for use in a study to be performed. Additionally, these students will learn how to collect data based on different data collection methods, construct these tools, and pilot them before they become ready for use. Finally, this course elucidates the requirements for an academic work, considering aspects related to language, writing style, and lay-out. To culminate this final stage, students will learn to write a comprehensive research proposal that may be conducted in the future.

COURSE OBJECTIVES:

This course aims to guide bachelor students at the department of Applied Geology in the AUCA towards achieving competence and proficiency in the theory of and practice to research. This fundamental objective can be realized through helping these students to develop the subject of their research, encourage the formation of higher level of trained intellectual ability, critical analysis, rigour, and independence of thought, foster individual judgement, and skill in the application of research theory and methods, and develop skills required in writing research proposals, reports, and dissertation.

METHOD OF INSTRUCTION:

Combination of theory and practical exercises in a course. Practical exercises will be initiated on the earth surface (ground), building towards the end of midterm lecture sessions (see intended course calendar for details). Students will be responsible for completing and submitting the exercises as homework assignments.

PROGRAM GOALS

In this course, students will develop the skills needed to:

1. understand what research is and what is not.
2. raise awareness of crucial aspect of the nature of Knowledge and the value of scientific method
3. introduce the concept at the heart of every research project –the research problem- and to discuss what a researchable problem is
4. evaluate literature, form a variety of sources, pertinent to the research objectives
5. identify and justify the basic components of the research framework, relevant to the tackled research problem
6. explain and justify how researchers will collect research data.
7. discuss how to cite sources, using the American Psychological Association (APA), and justify this choice
8. consider the kind of language to use in an academic written work
9. put forward a credible research proposal, and
10. finally, warn the common mistakes in the field of research methodology
11. understand fundamental principles of research techniques on geodynamics;
12. formulate research questions appropriate to geophysical survey research;
13. understand the links between existing research and new research;
14. Interpret research findings and conclusions.

RECOMMENDED READING:

1. Cohen, L. Lawrence, M., & Morrison, K. (2005). *Research Methods in Education* (5th edition). Oxford: Oxford University Press.
2. Kumar, R. (2011). *Research Methodology: a step-by-step guide for beginners* (3rd edition). London, UK: TJ International Ltd, Padstow, Cornwall.
3. Silverman, David. 2018. *Doing Qualitative Research* [5th edition]. Sage.

WORK AND ATTENDANCE:

The work and attendance of all students will be monitored. Students are expected to attend all lectures and seminars. Attendance is regarded as a part of the course. This is for the benefit of the students and helps to ensure that they are coping with the work and managing to comprehend all the information and complete all the tasks given to them. Students must come to class on time not to disturb others, being more than 10 minutes late is counted as an absence. Students are not allowed to use any mobile devices or portable computers in class, this is considered as a “negative” participation and participation points be deducted for that.

Documentation of reasons for absence: Any valid reasons for absence should be reported to the Instructor as soon as possible. Legitimate excuses are the following: illness, confirmed by a doctor's note next class; a death in the family; participation in conferences or seminars with preliminary notification of the Instructor and submission of the relevant supporting documents. Unless the correct procedure is followed no allowances can be made.

LECTURES OUTLINE AND READING MATERIAL:

The course materials are available in the internet sources, e-course of AUCA, some of them in electronic course of AUCA library and additional sources for using by students independently are welcomed. Relevant guest speakers will be invited to the course within the fall semester.

CONTENTS:

The general course structure will be as follows (see intended course calendar for further details):

- 1) Introduction: A review of the Fundamentals Research Methodology.
- 2) The Research Problem
- 3) The Review of Literature
- 4) The Research Hypotheses
- 5) The Research Approach
- 6) The Research Strategies
- 7) Data Collection Methods
- 8) Sampling

COURSE OUTLINE

Note: The schedule is subject to modifications. If this is the case you will be informed during the classes or the modified version of the syllabus will be uploaded to e-course. Please, bear in mind that you are responsible for keeping track of such changes.

WEEKS	DATES	TENTATIVE TOPIC CALENDAR	ASSIGNMENTS
WK1	Jan.16	Review of syllabus and introduction Research Methodology	
	Jan.16	1. Meaning of Research 2. Definitions of Research 3. Objectives of Research	
WK2	Jan.23	4. Motivation in Research 5. General Characteristics of Research 6. Criteria of Good Research 7. Types of Research	
	Jan.23		
WK3	Jan.30	The Research Problem	
	Jan.30	1. Scientific Thinking 2. What is a Research Problem 3. Selecting the Problem 4. Sources of the Problem	
WK4	Feb.6		

	Feb.6	5. Defining a Problem 6. Statement of a Problem 7. Delimiting a Problem 8. Evaluation of a Problem	
WK5	Feb.13	The Review of Literature:	
	Feb.13	1. Meaning of Review of Literature 2. Need of Review of Literature 3. Objectives of Review of Literature 4. Sources of Literature	
WK6	Feb.20	5. The Functions of Literature	
	Feb.20	6. How to Conduct the Review of Literature 7. Some Hints for the Review of Literature 8. Precautions in Library Use 9. Reporting the Review of Literature	Assignment #1
WK7	Feb.27	The Research Hypotheses:	
	Feb.27	1. Meaning of Hypothesis 2. Definitions of Hypothesis 3. Nature of Hypothesis 4. Functions of Hypothesis 5. Importance of Hypothesis	
WK8	Mar.6	6. Kinds of Hypothesis	
	Mar.6	7. Characteristics of a Good Hypothesis 8. Variables in a Hypothesis 9. Formulating a Hypothesis 10. Testing the Hypothesis	
WK9	Mar.13	Midterm exam	
	Mar.13	The Research Approach: 1. The Philosophical Background 2. The Qualitative Approach 3. The Quantitative Approach 4. The Mixed-Methods Approach 5. Criteria for Selecting a Research Approach	
WK10	Mar.20	The Research Strategies:	
	Mar.20	1. What are the Research Strategies? 2. Which Strategy to Choose? 3. Case Studies 4. Experiments	
		March 27, Monday – April 2, Saturday	Spring break (no classes)
WK11	Apr.3	6. Phenomenology	
	Apr.3	7. Ground Theory (GT) 8. Action Research 9. Mixed-methods 10. Longitudinal	Assignment #2
WK12	Apr.10	Data Collection Methods:	
	Apr.10	1. Questionnaires 2. Interviews 3. Focus Groups 4. Observation	
WK13	Apr.17	Sampling: 1. Meaning and Definition of Sampling	
	Apr.17	2. Functions of Population and Sampling 3. Methods of Sampling	
WK14	Apr.24	4. Characteristics of a Good Sample	Assignment #3
	Apr.24	5. Size of a Sample 6. The Sample Cycle	
WK15	May.8	Presentation of research proposal	

	May.8	Presentation of research proposal	
WK16	Finals week	Final exam	

Evaluation and Assessment:

The students' performance is assessed on the basis of their participation during the lectures, including the familiarity with the reading material, note-taking, making assignments, oral presentations and written exams. Students are expected to pass all the above in order to obtain a credit for the semester.

Examination:

The students will take two exams: the first one is a mid-term test and the second one is an essay-type examination. The test consists of questions on short definitions and multiple-choice questions. Exam papers are composed of essay type questions, which require in-depth answers on the topics studied. No books, papers etc. can be used during the exam. Exam questions are compiled from the questions discussed during the lectures. Evidence of using additional sources of information related to the course content will be marked in the form of additional points for examination paper.

Grading scheme: All grades will be awarded in accordance with the scheme given below.

REQUIREMENTS

Class participation and effort (10% of final grade)

Learning is an active process, so the classroom should likewise be active: questions and comments are actively welcomed so long as they are on-topic. Students will be held accountable for all class material on the exam and on the assignments. No medical certificates will be accepted.

Grading Guidelines for Seminar and Lecture Participation

'A' – Students attend each lecture and seminar with questions about the lectures and readings. In engaged dialogues, they raise these questions for other students to discuss, and listen to contrary opinions. They initiate and develop critical issues concerning the seminar activities. They are well-structured and well-organized for the completion of their research projects.

'B' – Students complete their readings, but do not always reflect on the questions and issues raised during the lectures and seminars. Though they articulate their own views, they passively wait for others to initiate interesting issues. They are reasonably well organized for their own projects.

'C' – Students attend, prepare and listen attentively, but rarely enter into discussions. They are adequately prepared for their own projects.

'D' – Students are inconsistent in their attendance and preparations. They do not respect others' contributions. They are also poorly prepared for their own projects.

'F' – Students are consistently ill-prepared and have poor attendance. They are rude and disruptive. They also fail to show any signs of organizing their own projects.

Assignments (3*10=30% of final grade)

There will be three assignments throughout the semester. Unless otherwise stated, homework assignments are to be done by students individually. **Any students who plagiarize will get an "F" grade for that assignment. All assignments are due at the beginning of the classes on the day it is due (see schedule below). No late assignments will be accepted.** Further information on assignments will be distributed later in the semester.

Assignment #1: Formulation of fields in geophysics

Assignment #2: Definition of tasks Engineering seismology, Earthquake engineering and Observation seismology

Assignment #3: Geophysical measurements, field work philosophy

In-class presentation of research proposal and contribution to the discussion of other students' projects (15% of final grade)

Each student will deliver 1 presentation throughout the course. The presentation should include the information on the research topic, motivation for the study, questions and/or hypotheses, preliminary review of literature and proposed method. Further information on the presentation will be distributed later in the semester.

Participation is the key to a lively presentation. 5% of the course grade will depend upon contributions to other students' presentation. Participation provides the opportunity to practice speaking and persuasive skills, as well as the ability to listen. Comments that are vague, repetitive, unrelated to the current topic, disrespectful of others, or without sufficient foundation will be evaluated negatively. What matters is the quality of one's contributions to the class discussion, not the number of times one speaks.

Grading Guidelines for Presentations

'A' – Students presented important points in a thorough manner; made extensive eye contact with the audience; did not read the presentation; kept to the 7-10 minute time limit; used visual support for the presentation (posters, props, etc.). The speech natural and continuous with few or no unnatural pauses.

'B' – Students presented some important points but could have been more thorough; made limited eye contact with the audience; did not read the presentation; kept within one minute of the 7-10 minute time limit; used some type of visual support. Slight stumbling, but manages to rephrase or continue

'C' – Lacking in important points and/or details; made little eye contact with the audience; read the presentation often; diverged from the 7-10 minute time limit by 2-3 minutes. The speech frequently hesitant or jerky; sentences may be left uncompleted

'D' – Severely lacking in important points and/or details; failed to make eye contact; read the presentation; diverged from the time limit by more than three minutes; did not use any type of visual support. The speech very slow and uneven, except for short or routine sentences.

'F' – Assignments where none of the above apply.

Guidelines for Evaluating Participation

'A' – Outstanding Contributor: Ideas offered are always substantive, provide one or more major insights as well as direction for the discussion. Challenges are well substantiated and persuasively presented. If this student were not a member of the class, the quality of discussion would be diminished markedly.

'B' – Good Contributor: Ideas offered are usually substantive, provide good insights and sometimes direction for the discussion. Challenges are well substantiated and often persuasive. If this student were not a member of the class, the quality of discussion would be diminished.

'C' – Adequate Contributor: Ideas offered are sometimes substantive, provide generally useful insights but seldom offer a new direction for the discussion. Challenges are sometimes presented, fairly well substantiated, and are sometimes persuasive. If this student were not a member of the class, the quality of discussion would be diminished.

'D' – Unsatisfactory Contributor: Ideas offered are seldom substantive, provide few if any insights and never a constructive direction for the discussion. Integrative comments and effective challenges are absent. If this student were not a member of the class, valuable air-time would be saved.

'F' – Non-Participant: This person says little or nothing during discussion. Hence, there is not an adequate basis for evaluation. If this student were not a member of the class, the quality of discussion would not be changed.

Midterm and final exams (2*15 =30% of final grade)

There will be two in-class, closed-book exams during the semester (see schedule below). Each exam will contribute 10% to students' total grade. Final exam is cumulative. Exams will cover all material covered in lectures and in textbook. **Any student who cheats on an exam will get an "F" grade for that exam.**

Missed exams can be re-taken under following conditions:

1. students inform the instructor before an exam unless of an illness;
2. students must have written documentation for the absence; and
3. the instructor determines when the make-up is taken and the format of the exam.

Research paper (15% of final grade)

Students will conduct research project on the topic of their own choosing. Students will define the study problems and propose methods to address these problems, carry out data collection and analysis. **Paper** should identify the research topic, key research hypotheses as well as present the related literature review. The papers will be written in APA style. **Any students who plagiarized will get an "F" grade for that paper. Papers received late will not be accepted (see schedule below).** Further information on the research papers will be distributed later in the semester.

Grading Guidelines for Assignments, Exams and Research papers

'A' – Assignments of exceptional quality, and are comprehensive and original in their insights, and written with some sense of style.

‘A-’ – Assignments of comprehensive and original quality, with an insightful treatment of the subject matter. They indicate a high degree of intellectual, conceptual and analytical sophistication. Assignments are also well-structured, with clear, creative themes, which are supported by clear evidence, and they astutely evaluate counter-arguments.

‘B+’ – Assignments are extremely thorough and thoughtful, though they lack originality, comprehensiveness or insight. Assignments are logical and clear, and have well-reasoned objectives and written structure.

‘B’ – Assignments are well-reasoned and well-organized, and the ideas are developed, but with little originality. They also indicate exceptional insights, but are inadequately developed.

‘C+’ – Assignments show competency of the subject matter, with an adequate written structure. They contain some ideas, which demonstrate analytical skills, though overall, they are not well developed.

‘C’ – Assignments regurgitates readings and lecture ideas and materials.

‘D+’ – Assignments have evidence of some thought, though they lack analytical structure.

‘F’ – Assignments where none of the above apply, or are plagiarized from other sources.

GRADING GUIDELINES

Class participation and effort	10%
Three assignments	30%
In-class presentation of research proposal	15%
Midterm and final exams	30%
Research papers	15%
Total possible points	100%

Grades will be assigned based on the following ranges:

Grade	Percent
A	Over 95%
A-	90 – 94%
B+	85 – 89%
B	80 – 84%
B-	75 – 79%
C+	70 – 74%
C	65 – 69%
C-	60 – 64%
D	55 – 59%
F	Under 54%