University of
Applied Sciences

SRE1ILV - Scientific Methods and Analysis

ECTS: 6 | Contact hours per week: 3 | Semester: 1 | WS25/26

Lecturer(s) / Lehrende(r)

Dr. Karl Michael HÖFERL

Learning outcomes

At the end of this module students are able to:

· distinguish between qualitative and quantitative research methods, applying quality criteria (evidence) to evaluate research approaches, and identifying and explaining the essential components of various qualitative and quantitative methodologies,
· define and select appropriate sampling methods and explain the structure of research studies, and the foundational principles governing the measurement of constructs in research studies,
· describe, organize, and apply different phases of the empirical social research process, to locate relevant literature, skillfully cite sources, discuss the standard structural elements of a scientific work, and summarize ethical considerations with regard to research and data protection,
· use library resources and sources from govermental and non govermental institutions (e.g. EU, OECD, UN, ESS,...) specific to business and sustainability topics, arrange reference lists through applying reference management software and describe the fundamental structure of academic paper and implement source material into their writing suitable for an academic audience.

Course description

Fundamentals of Philosophy of Science
· Induction, deduction
· Gain of knowledge, logical conclusions
· Theory, model, concept
· Research questions, hypotheses
· Ethics in research
Methods overview
· Qualitative and quantitative methods (surveys, experiments, interviews, focus groups)
· Quality criteria of scientific measurements (reliability, validity)
· Constructs and their operationalisation
· Method combination
· Sampling
Basic principles of scientific work
· Scientific research processes (topic identification, research questions and method selection
· Citation standards, source research and criticism
· Information retrieval in international business research: databases and search strategies
· Research paper structure
Development of scientific work
· Individual paper according to scientific guidelines presented in foundations of empirical social research
· Reference management software

Teaching concept

In the module, we employ various learning activities to achieve the outlined objectives:

Chalk-talk with Discussion: Engage students to distinguish between qualitative and quantitative research methods. Discussions will focus on applying quality criteria to evaluate research approaches and identifying and explaining essential components of various methodologies.

Exercises/Group Work: Facilitate practical understanding, allowing students to define and select appropriate sampling methods. This approach emphasizes foundational principles governing the measurement of constructs in research studies and

highlights the fundamental structure of scientific studies. Moreover, these activities enhance students' abilities to implement source material into their writing suitable for an academic audience and illustrate ethical considerations with regard to resaerch and data protection,.

Self-study: Encourages and guides students to describe, organize, and apply different phases of the empirical social research process. They will learn to locate relevant literature, skillfully cite sources, use library resources and sources from govermental and non govermental institutions (e.g. EU, OECD, UN, ESS,...) specific to business and sustainability topics, arrange reference lists through applying reference management software, and reflect the standard structural elements of scientific work.

Planned timetable:

EH	Date & Time	Room	Contact hours	Topics
EH1	03.10.2025 13:30 - 17:45	P.1.04	5	# Overview & Rulez of the Game # What is Science? # Role of Science in Society
EH2	04.10.2025 13:30 - 17:45	G1.2.21	5	# Buildingsblocks of Knowledge: Logic of Logic, Paradigms # Research Process
EH3	11.10.2025 13:30 - 17:45	G1.1.20	5	# Research Process & Outcomes: types of Output # Finding & Managing Output
EH4	15.10.2025 17:00 - 19:45	EL	3	☐☐ Managing Literature with Style
EH5	24.10.2025 18:15 - 21:00	P.1.04	3	# Research Questions and Design: Hypothesis, objective and questions; devleoping reserach questions; research design
EH6	25.10.2025 13:15 - 16:45	G1.1.22	4	# Gaining data:qualititative & quantitative Methods, Triangulation
EH7	07.11.2025 17:00 - 19:45	VC	3	# Analysing & interpreting data: qualitative & qunatitative approaches
EH8	13.12.2025 12:45 -	G1.1.24	4	# Sharing your findings: reports, talks & posters;

	16:15			alternative dissemination strategies
EH9	13.12.2025 17:00 - 19:45	EL	3	☐☐ Reviewing a seminar paper
EH10	10.01.2026 12:45 - 17:00	G.2.10	5	# Scientific Writing
EH11	16.01.2026 16:30 - 18:15	P.U.01	2	Buffer unit

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1. attempt

Submission (Deliverable) (Prüfung)
written / - / 50,00%
-

Submission (Deliverable) (Prüfung)
written / - / 50,00%
-

2. attempt

Submission (Deliverable) (Prüfung)
- / - / 100,00%
-

Self Study Time / Selbststudienzeit*

118,5 hours per semester / Stunden pro Semester
* The "workload" of a course comprises course attendance as well as all work necessary to complete the course (course preparation), individual study, group work, research, assignments, exam preparation etc. (= Self-study time). The workload is expressed in ECTS (1 ECTS = 25 hours).
* Die "workload" für die positive Absolvierung einer Lehrveranstaltung umfasst die Präsenzzeiten sowie jene Zeiten, die für individuelle Vorbereitung, Gruppenarbeiten, Recherche, Verfassen von Arbeiten, Prüfungsvorbereitung etc. notwendig sind (= Selbststudienzeit). Die "workload" wird in ECTS ausgedrückt (1

ECTS = 25 Stunden).

Readings & media

Berg, B. L., & Lune, H. (2017). *Qualitative research methods for the social sciences* (9th ed.). Pearson.

Galvan, M. C., & Pyrczak, F. (2023). *Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioral Sciences* (9th ed.). Routledge. https://doi.org/10.4324/9781003230410

Saunders, M., Lewis, P., & Thornhill, A. (2023). *Research methods for business students* (9th ed.). Pearson.

Sheppard, V. (2020). *Research Methods for the Social Sciences: An Introduction*. https://pressbooks.bccampus.ca/jibcresearchmethods/

Stockemer, D., & Bordeleau, J.-N. (2019). *Quantitative Methods for the Social Sciences* (2nd ed.). Springer International Publishing. https://doi.org/10.1007/978-3-319-99118-4