



## HÖGSKOLAN I GÄVLE

### Scientific Methods and Writing in Energy Engineering 3 cr

*Vetenskaplig metod och skrivande inom energiteknik 3 hp*

Set by Faculty of Engineering and Sustainable Development

**Version**

**Set at**

**Valid from**

5/9/22

**HT2023**

<b>Level</b>	A1F
<b>Education level</b>	Second cycle
<b>Course identifier</b>	ETA332
<b>Credits</b>	3 cr
<b>Main field of study</b>	Energy Technology
<b>Subject group</b>	Energy Technology
<b>Disciplinary domain</b>	Technology 100.0 %

**Learning outcomes** After completion of the course the student shall be able to

Knowledge and understanding

1. describe the main research methods in technology and science
2. describe quantitative as well as qualitative data collection methods

Skills and Abilities

3. formulate research problems and questions
4. choose appropriate research method based on particular research questions
5. use scientific databases to find relevant literature
6. refer correctly regarding formalism, plagiarism and ethics
7. write and orally present a research plan in energy systems, and oppose a similar research plan

Judgement and approach

8. identify and critically discuss merits and demerits in scientific publications.

**Course content**

Research planning  
Research methodology

	Literature search		
	Data presentation		
	Scientific writing - language and formalities		
	Reference systems		
	Ethics and plagiarism		
	To relate to environment and sustainable development		
	Research proposal writing		
	Oral presentation and opposition procedures		
<b>Teaching</b>	Lectures, assignments and writing task		
<b>Prerequisites</b>	Building Energy Systems 7,5 credits and Energy Systems 7,5 credits, or equivalent		
<b>Examination</b>	Assignments and oral presentation and literature review and research proposal		
	0010 Assignments and oral presentation 1 credit, examines learning outcomes 1-4, 7-8, grades Pass, Fail		
	0020 Literature review and research proposal 2 credits, examines learning outcomes 3-8, grades A-F		
<b>Grade</b>	A, B, C, D, E, Fx, F		
<b>Other regulations</b>	Degree criteria for final grade will be handed out by the course responsible or examiner latest at the beginning of the course.		
<b>Sustainable environment</b>	A minor part of the course content deals with sustainable development.		
<b>Module</b>			
	0010 Assignments and oral presentation	1 cr	Grade: UG
	0020 Literature review and research proposal	2 cr	Grade: AF