

## New Qualifications Framework: Terminology for descriptions of learning outcomes – Knowledge, skills and competences.

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A qualifications framework must show:

- **What** a student *knows, understands and is able to do* on the basis of a given qualification – and
- **How** the various qualifications in higher education interact, i.e., how students **can move between qualifications**.
- Qualifications frameworks therefore focus on **outcomes** more than on procedures, and
- Several learning paths – including lifelong learning – can lead to a given qualification.

(From the website developed by the Council of Europe, the Bologna Secretariat)

<http://www.ond.vlaanderen.be/hogeronderwijs/bologna/gf/gf.asp>

The levels and degrees are described in terms of the learning outcomes a student typically is expected to have achieved upon completion (end of a study program, after a course, a module, an internship period).

The learning outcome is characterized by the use of active verbs that express knowledge, understanding, application, analysis, evaluation etc., for example:

*“The student after module xxx ..... has knowledge of, can **analyze** and **reflect** on and **understand** the application of this and the methodology, can **master** methodologies at a high level within the subject area and can, independently as well as in collaboration with others, **develop** the subject area’s methodologies and techniques in a work context and **evaluate** the quality of the results.” (See more examples in the paper by Krogh, L. 2009. *New Qualifications Framework, INS – new forms of description cf. Qualifications Framework for Danish Higher Education, May 2007, posted on the resource page concerning the Qualifications Framework for Danish Higher Education*).*

<http://ins.aau.dk/Udarbejdelse+af+studieordninger>

## Bachelor's Program

<b>Qualifications Framework's formulation of level</b> (at the end of a study program/after a course/after a module/after an internship period)	<b>Learning outcome formulated acc. to taxonomies</b>	<b>Corresponding terminology/conceptual framework for curriculum design</b>
<p><b>Knowledge</b></p> <ul style="list-style-type: none"> <li>• <b>Knowledge of</b> theory</li> <li>• Knowledge of methodology</li> <li>• Knowledge of practice</li> <li>• <b>Be able to understand</b> theory</li> <li>• Be able to understand methodology</li> <li>• Be able to understand practice</li> <li>• <b>Be able to reflect</b> on theory</li> <li>• Be able to reflect on methodology</li> <li>• Be able to reflect on practice</li> </ul>	<p><b>Bloom's taxonomy + Bloom's taxonomy revised by Krathwohl (2002):</b></p> <p><b>Knowledge:</b>                      Factual knowledge                      Conceptual knowledge                      Procedural knowledge (knowledge about doing)                      Knowledge about knowledge (metacognitive knowledge)</p>	<p><b>The student must be able to demonstrate knowledge of</b>                      (Give an account of, describe, explain, classify, identify...)</p> <p><b>Factual knowledge</b>                      Apply the subject's terminology                      Explain special aspects, details and elements</p> <p><b>Conceptual knowledge</b>                      Apply/explain classifications and categories                      Apply/explain principles and generalizations                      Explain theories, models, structures</p> <p><b>Procedural knowledge</b>                      Explain discipline-specific skills and algorithms                      Explain discipline-specific techniques and methods                      Explain criteria for determination of appropriate procedures</p> <p><b>Knowledge about knowledge</b>                      Reflect on own knowledge within an area</p> <p><b>Demonstrate understanding:</b>                      Interpret                      Exemplify                      Classify                      Summarize                      Derive                      Compare                      Explain</p>

	<p><b>Understanding:</b> Metacognitive knowledge</p> <p><b>Reflection:</b> Knowledge of ways of thinking Awareness and knowledge of one's own thought processes</p>	<p><b>Demonstrate reflection:</b> Argue for and document own learning process (e.g., through a portfolio, log book, learning journal, process description in a project) Consideration of/Reflection on the subject's content and methods Reasoning Reflection on the principles of the work process Reflection on the progression of the process Reflection on the quality of the product</p>
<p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Must <b>be able to apply</b> the methodologies of the subject area</li> <li>• Must be able to apply the tools of the subject area</li> <li>• Must be able to apply skills related to the subject area/profession</li> <li>• Must <b>be able to evaluate</b> theoretical issues</li> <li>• Must be able to evaluate practical issues</li> <li>• Must <b>be able to justify and select</b> relevant solution models</li> <li>• Must <b>be able to communicate</b> about the subject to peers</li> <li>• Must be able to communicate about the subject to non-specialists</li> </ul>	<p><b>Application</b></p> <p><b>Analyse</b></p> <p><b>Evaluate</b></p> <p><b>Create</b></p>	<p><b>Application:</b> Conduct Implement Calculate Apply the theory/methodologies/tools of the subject area</p> <p><b>Analyse:</b> Differentiate Organize Relate</p> <p><b>Evaluate:</b> Evaluate on the basis of criteria and standards Choose Argue Verify Take a critical position</p> <p><b>Create:</b> Generate Plan Produce Design</p> <p><b>Communicate:</b> Account for... Explain... Lay out... Present... Illustrate...</p>

		-theories/methods/particular issues/solution models of the subject area - to non-specialists and peers
<b>Competences</b> <ul style="list-style-type: none"> <li>• Must <b>be able to handle</b> complex situations</li> <li>• Must be able to handle development-oriented situations</li> <li>• Must <b>be able to</b> independently <b>participate in</b> discipline-specific and cross-disciplinary collaboration with a professional approach</li> <li>• Must <b>be able to identify</b> own learning needs</li> <li>• Must <b>be able to structure</b> own learning in different learning environments</li> </ul>	<p>Ellström (1997): Evaluation of relevance Contextual analysis Problem analysis Apply theory in relation to concrete practice</p> <p>Bloom/Krathwohl: Knowledge Understanding Application Analysis Evaluation Create</p> <p>To be able to draw on, combine and apply the above knowledge and skills in different contexts</p>	<p>To be able to evaluate the subject area's/subject's relevance in a given situation/ in relation to a given issue To be able to transfer and apply the theory and methodologies of the subject to a given situation/issue</p> <p>Current/New/Unfamiliar contexts</p> <p>Relate analytically and reflectively to own learning outcome and learning needs, and, on the basis of this, evaluate and determine learning objectives, as well as devise a strategy for own further education/learning processes.</p>

## Master's Program

<b>Qualifications Framework's formulation of level (at the end of a study program/after a course/after a module/after an internship period)</b>	<b>Learning outcome formulated acc. to taxonomies</b>	<b>Corresponding terminology/conceptual framework for curriculum design</b>
<b>Knowledge</b> <ul style="list-style-type: none"> <li>• <b>Must possess knowledge of theory, based on the highest international research</b></li> <li>• <b>Be able to understand</b></li> <li>• <b>Be able to critically relate to the knowledge of the subject area(s)</b></li> </ul>	Ref.: Lauvås & Jakobsen (2004: 218)	<b>Knowledge</b> (See terminology under Bachelor's Program)  <b>Understand</b> Understanding of the subject area's possibilities Understanding of paradigms Understanding of concepts

<ul style="list-style-type: none"> <li>• <b>Be able to identify scientific issues</b></li> </ul>		<p>Understanding of methodology/-ies  Understanding of relation to other scientific areas and methodologies  (See additional terminology under Bachelor's Program)</p> <p><b>Critical evaluation</b>  Identify relevant criteria  Take a critical position/evaluate on the basis of explicit and relevant criteria</p> <p><b>Identification of scientific issues</b>  Be able to abstract from practice-related issues to formulation of (theoretical) issues that can be scientifically investigated  Be able to analyze, delimit and formulate theoretical issues with regard to scientific investigation (involving the theories and methodologies of the subject area)</p>
<p><b>Færdigheder</b></p> <ul style="list-style-type: none"> <li>• <b>Must master the scientific methodologies and tools of the subject area(s)</b></li> <li>• <b>Must master general skills related to work within the area</b></li> <li>• <b>Must be able to evaluate and select among scientific methodologies, tools and skills</b></li> <li>• <b>Must be able to set up new analysis and solution models</b></li> <li>• <b>Must be able to discuss professional issues</b></li> <li>• <b>Must be able to discuss scientific issues with peers and non-specialists</b></li> </ul>	<p>Carry out complex operations with great expertise (Simpson's taxonomy, 1966)</p> <p>Mastery is the highest level in Hauenstein's taxonomy (in order of degree of complexity) (Hauenstein, 1998)</p> <p>Evaluate/check/reflect critically  Bloom's taxonomy revised by Krathwohl (2002)</p>	<p><b>Master:</b>  Apply with expertise, independence, taking a critical position  manage, have control of, be capable of</p> <p>The scientific methodologies and tools of the subject area are concretely specified</p> <p>The general skills of the subject area are concretely specified</p> <p>Evaluate and select – in relation to a specific issue (the objective of the semester/module)</p> <p><b>Create</b>  (See terminology under Bachelor's Program)</p>

	<p>Ref.: Lauvås &amp; Jakobsen (2004: 218)</p>	<p><b>Formulate</b>  Hypothesis/problem/argument  Design investigation strategies  Information gathering and – handling  Interpret/reinterpret and evaluate information  Information processing  Synthesize and conclude  Evaluation of method  Creative thinking  Critical reasoning  Problem solving</p> <p><b>Be able to present</b> issues as well as justify and argue for own viewpoints  Be able to communicate questions in different genres to different target groups  Be able to adapt the form and content of communication to target groups and communication channels/media  Be able to communicate about discipline-specific and cross-disciplinary conditions and issues</p>
<p><b>Kompetence</b></p> <ul style="list-style-type: none"> <li>• <b>Must be able to manage work situations and developments that are complex, unpredictable and that require new solution models</b></li> <li>• <b>Must be able to independently initiate and carry out discipline-specific and cross-disciplinary collaboration</b></li> <li>• <b>Must be able to independently take professional responsibility</b></li> <li>• <b>Must be able to independently take responsibility for own</b></li> </ul>	<p>Ref.: Lauvås &amp; Jakobsen (2004: 218)</p>	<p>The above <b>Knowledge</b> and <b>Skills</b> are prerequisites for the demonstration of competence</p> <p>Identify central issues  Create an overview of the entire work process and development process  Be able to plan and initiate development-oriented work  Demonstrate ability for selecting and applying project management tools</p> <p>Demonstrate ability for collaboration, negotiation, mediation, conflict resolution  Be able to lead people and manage resources</p>

<p><b>professional development and specialization</b></p>		<p>Reflect on social and ethical responsibilities and obligations attached to application of own knowledge and evaluations</p> <p>Be able to evaluate own development and learning needs, plan development and learning strategies and initiate relevant actions</p>
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