

Guidance for Writing Aims and Learning Outcomes

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Introduction

Most universities and colleges across the world use an ‘outcomes-based’ approach to learning. This is an approach to teaching which sets out information at the start of the course about what the teachers expect students to have learnt, or to be able to do, by the end of the course.

This guide aims to help you write more focussed and useful aims and learning outcomes for programmes and modules. It gives a background to the use of aims and outcomes, then goes on to consider ways of writing intended learning outcomes at different levels within programmes, as well as how outcomes can be linked to assessment processes.

Within this guide, we use the term ‘programme’ for a complete programme of study (such as an undergraduate degree) and the term ‘module’ for a unit within a programme which has a discreet package of learning contained within it. We also use the generic term ‘course’ where we wish to include both ‘programmes’ and ‘modules’ in a statement.

What are learning outcomes?

There are two key terms used to describe the intentions of a module or programme; aims and learning outcomes. This guide will focus on writing and using learning outcomes, but it is useful to know the differences between aims and outcomes.

Aims

Programme or module aims serve as broad purposes or goals and are generally a statement of the intentions of the lecturer or institution for the course. They are not intended to be statements of what students will learn or do, but rather over-arching intentions of the course. At a basic level, aims are trying to answer two questions:

- What is the purpose of this programme or module?
- What is the programme or module trying to achieve?

Aims are there to help students make decisions about whether this is a module or programme they wish to take and to illustrate the key nature of the course in relation to the programme students are studying.

Aims should be brief, succinct and give students a reasonable idea of what to expect from the course. Some examples of aims:

- To provide a critical overview of the state of political debate in Britain during the nineteenth century
- To allow students to evaluate current research in particle physics
- To provide students with a range of opportunities to practice clinical and communications skills

Learning Outcomes

Learning outcomes are the skills and knowledge which it is intended that students should be able to demonstrate by the time the assessment processes for the course have been completed. The intention of learning outcomes is to give students a clear idea of what they are expected to be able to do by the end of the course. Programme level learning outcomes are statements of what successful students will achieve by the end of the programme – they are aspirational and pitched at the highest level of the programme. They are not a simple aggregation of module learning outcomes but more than the sum of the parts; on the other hand, module learning outcomes should align and contribute to the programme level learning outcomes.

Well-designed learning outcomes:

- Relate to the programme aims;
- Refer to relevant external reference points;
- Are clear to staff, students and external examiners.

External reference points

In designing learning outcomes lecturers should consult the following frameworks (where relevant) in order to align outcomes to the appropriate level and range of knowledge/skills:

- (i) the appropriate level of study according to the [Framework for Higher Education Qualifications](#) (FHEQ)
- (ii) the [SEEC Credit Level Descriptors](#) for FE and HE
- (iii) any relevant QAA [Subject Benchmark statements](#)
- (iv) relevant professional or accrediting body requirements
- (v) the [Queen Mary Statement of Graduate Attributes](#)

You should normally pitch your learning outcomes at the threshold level (i.e. the level required to pass the course not the level which the highest achieving students might attain) to support inclusivity and achievement of all students on your course.

Learning outcomes give students and staff clear guidance on what skills and knowledge will be assessed during or after the course. It is important to note that all learning outcomes should be assessable, but not all learning outcomes might be directly assessed (for instance, in an essay based course, individual students may not cover all the outcomes in their essays but these may well still be passable, yet all the outcomes should be capable of being assessed).

Writing learning outcomes

Useful learning outcomes are those which describe what the typical student will be able to do by the time the course has been completed, and which can be assessed to measure to what extent students have achieved these outcomes. For instance 'by the end of this module, students will understand Newton's Laws of Motion' is not only unhelpful, but also not easily assessable. An improvement could be: 'by the end of this module, students will be able to describe how Newton's Laws of Motion can be used to investigate the movement of bodies'. When writing learning outcomes remember:

- Write in the future tense – 'by the end of this module, students will be able to...'
- Don't try to use outcomes to replace your syllabus – identify the most important things you want the students to learn, and try to keep the number of outcomes to between 6 and 8 for a 15 credit module
- Make sure that your outcomes are achievable and assessable – think about how you might assess the outcomes as you write them
- Try to avoid jargon and abbreviations
- Include process as well as product – try not to make the outcome match the product, rather use the outcome to show what process you expect students to undertake. For instance, 'be able to write a research dissertation' is not a helpful outcome, as it requires students to understand what the process of writing the dissertation is. 'Be able to plan and implement a research project' is more helpful, as it shows the process we are asking the students to undertake more clearly.
- Write at the appropriate level for the course – see below for more detail.

A good set of module learning outcomes will include a balance of different types of learning outcome too. At QMUL the module proposal form divides these into:

- Academic content (knowledge and understanding) – these are often the most common type of outcome. They describe a set of knowledge that student will be expected to have acquired by the end of the course.
- Disciplinary skills (discipline specific skills, often practical) – As well as being able to recall information, learning outcomes should describe the kinds of application or

transformation that students will be expected to make of that information. At higher levels outcomes should show that students should be able to engage with knowledge critically, to evaluate it, or to analyse or synthesise complex data.

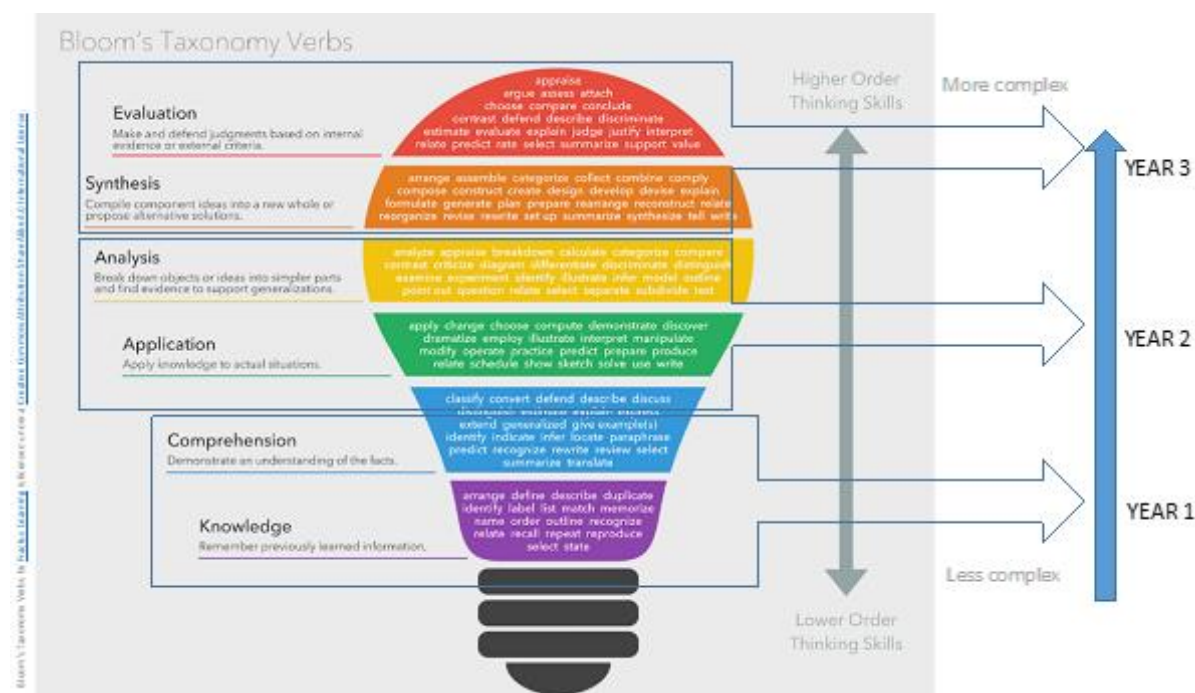
- Graduate attributes (intellectual and transferable skills) – Learning outcomes should cover skills development as well as knowledge acquisition. If you intend to assess students’ capability in a particular skill, think about how you express that as an outcome for the course.

Getting the level right

Benjamin Bloom’s Taxonomy of Educational Objectives is a useful guide for thinking about the appropriate level of learning outcomes. Developed in the 1950s, Bloom’s work in classifying cognitive ability is very helpful when writing learning outcomes, and particularly in providing a range of active verbs to use when putting together outcomes.

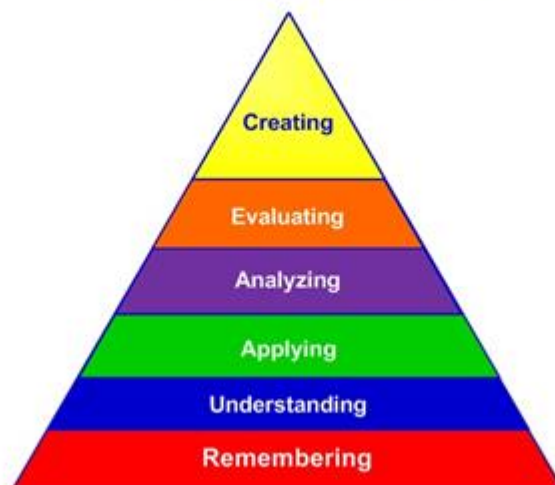
The table below sets out the six levels in the taxonomy and is based on work from Stefani (2009). However, do not take the suggested verbs as being the only ones possible, nor as fitting only into one level. Some verbs we use may well operate at more than one level. Don’t expect students to be able to carry out higher level tasks without the basic levels - the proposal behind Bloom’s Taxonomy is that students must master the ‘lower’ level cognitive processes (such as those grouped under ‘knowledge’ and ‘comprehension’) before they can move up to ‘higher’ levels of the framework (such as ‘synthesis’ and ‘evaluation’). The design of the framework is not judgemental and the lower levels are equally as vital to higher education as the higher levels. Even for the most complex, high level courses there will still be a need for students to memorise and be able to recall facts as well as interpret, apply and analyse them.

In Bloom’s hierarchy, verbs relating to the lower cognitive processes will be more likely to be used in outcomes for lower levels of study (Levels 4 and 5), while those related to higher cognitive processes are more likely at Levels 6 or 7. But this is only more likely — it is not always the case. This diagram sets out a potential application of Bloom’s taxonomy at a programme level:



In 2001 a group of psychologists and curriculum developers revised Bloom's Taxonomy, developing 'A Revision of Bloom's Taxonomy for Educational Objectives' (Anderson and Krathwohl, 2001). In this revised taxonomy verbs are used for the categories and the top two categories are switched around, so creating forms the highest level of cognitive skill (in Bloom's original it is evaluation).

Blooms Taxonomy - Revised



Getting the level right: examples of verbs and ILOs

Level of cognitive skill	What does it mean?	What verbs are useful?	Example outcomes – 'By the end of this module students will be able to...'
Remembering	What do we expect students to know? This basic level focuses on recall and description.	Know; Define; Memorise; List; Recall; Name; Relate; Identify; State; Describe; Show; Quote; Present	List the operation principles of common digital circuit applications Identify key features of single celled organisms Identify and describe different forms of the sonnet
Understanding	What do we expect students to be able to interpret? How do students convey their understanding as well as their recall?	Discuss; Review; Explain; Locate; Illustrate; Clarify; Select; Summarise; Conclude	Explain how the life cycle of a lytic virus operates Review a range of social science research methods
Applying	Can students use a theory or information in different situations? Are students able to articulate the relevance of teaching in other circumstances?	Solve; Examine; Modify; Interpret; Apply; Use; Practise; Demonstrate; Classify	Use P200 and P1000 Gilson pipettes independently and accurately Use a Lineweaver-Burke plot to calculate Vmax and Km

			Apply appropriate statistical tests to a dataset
Analysing	Can students identify and explain relationships between material? Can they break knowledge down into constituent parts and show how these parts relate to each other?	Differentiate; Investigate; Appraise; Criticise: Debate: Compare; Contrast; Distinguish; Analyse	Calculate how many white blood cells are in a litre of blood Compare the replication processes of RNA and DNA viruses Analyse recent news stories using the IPA's seven common propaganda devices
Evaluating	Can students make judgements about knowledge? Can they construct an argument or compare opposing views?	Judge; Select; Evaluate; Choose; Assess; Rate; Measure; Argue; Defend	Critically evaluate the record of the past and how historians and others have interpreted it Debate the statement "There is a gene for every behaviour" Assess to what extent educational theory is applicable to education policy
Creating	Can students use their skills and knowledge to produce a new artefact? Can they put information together in a new way or propose alternative solutions?	Assemble; Build; Compile; Construct; Create; Design; Develop; Formulate; Invent; Plan; Propose; Synthesise	Design and perform research on the different aspects of emergencies and disaster events Invent a solution to an urban problem that is relevant to their own city, town, or campus Construct a dichotomous classification key to identify plant specimens

The University of Sussex has developed a spreadsheet building on the sector frameworks (FHEQ and SEEC) to help with language for Programme and Module Learning Outcomes at each level of study. The spreadsheet can be found [here](#). The boxes below suggest the kinds of outcomes that could be appropriate to each level of study.

(Resource University of Sussex – Academic Development and Quality Enhancement. <http://www.sussex.ac.uk/adqe/curriculum/learning-outcomes>)

Level 3 Foundation Year

Knowledge descriptor

- Has factual, procedural and theoretical knowledge and understanding of a subject or field of work to complete tasks and address problems that while well-defined, may be complex and non-routine.
- Can interpret and evaluate relevant information and ideas.
- Is aware of the nature of the area of study or work.
- Is aware of different perspectives or approaches within the area of study or work.

Skills descriptor

- Identify, select and use appropriate cognitive and practical skills, methods and procedures to address problems that while well-defined, may be complex and non-routine.
- Use appropriate investigation to inform actions.
- Review how effective methods and actions have been

Level 4 – First Year Undergraduate

Knowledge Descriptor

Typically, holders of the qualification will be able to:

- evaluate the appropriateness of different approaches to solving problems related to their area(s) of study and/or work
- communicate the results of their study/work accurately and reliably, and with structured and coherent arguments
- undertake further training and develop new skills within a structured and managed environment.

Skill Descriptor

And holders will have:

- the qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility.

Level 5 – Second Year Undergraduate

Knowledge Descriptor

Typically, holders of the qualification will be able to:

- use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis
- effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences and deploy key techniques of the discipline effectively
- undertake further training, develop existing skills and acquire new competences that will enable them to assume significant responsibility within organisations.

Skill Descriptor

And holders will have:

- the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making.

Level 6 – Third/Final Year Undergraduate

Typically, holders of the qualification will be able to:

- apply the methods and techniques that they have learned to review, consolidate, extend and apply their knowledge and understanding, and to initiate and carry out projects
- critically evaluate arguments, assumptions, abstract concepts and data (that may be incomplete), to make judgements, and to frame appropriate questions to achieve a solution - or identify a range of solutions - to a problem
- communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.

And holders will have:

- the qualities and transferable skills necessary for employment requiring:
 - the exercise of initiative and personal responsibility
 - decision-making in complex and unpredictable contexts
 - the learning ability needed to undertake appropriate further training of a professional or equivalent nature.

Level 7 – Postgraduate/Final Year Integrated Undergraduate

Typically, holders of the qualification will be able to:

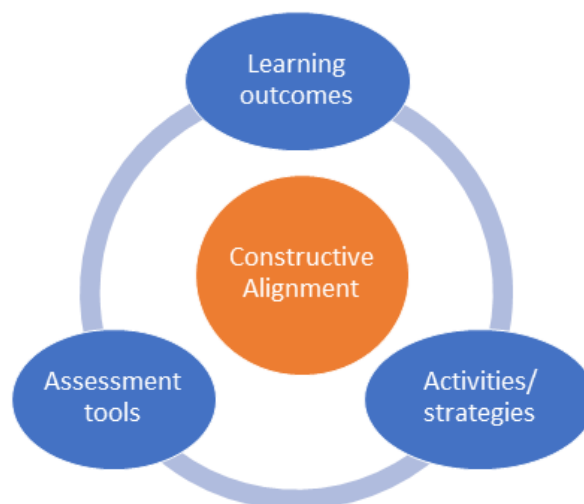
- deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences
- demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level
- continue to advance their knowledge and understanding, and to develop new skills to a high level.

And holders will have:

- the qualities and transferable skills necessary for employment requiring:
 - the exercise of initiative and personal responsibility
 - decision-making in complex and unpredictable situations
 - the independent learning ability required for continuing professional development.

Linking learning outcomes with teaching and assessment

Writing learning outcomes for courses should not be an isolated activity but an integral part of curriculum design and teaching. The integration of learning outcomes with both assessment and teaching was called 'constructive alignment' by Biggs (1999). He explains the concept of constructive alignment as follows: 'The learning activity in the intended outcomes, expressed as a verb, needs to be activated in the teaching if the outcome is to be achieved and in the assessment task to verify that the outcome has in fact been achieved.' (p. 52)



Constructive alignment means asking yourself three key questions when thinking about designing courses:

- What should the students know or be able to do by the end of the course (what are the intended learning outcomes)?
- What methods will I use in my teaching to encourage students to work towards the achievement of these outcomes?
- How will I design assessment in such a way to help me and the students know that they have achieved the outcomes?

If these three questions are used then learning outcomes can become a more useful tool for both students and staff as a means of defining and driving student learning. The assessment of outcomes may be through formative or informal assessment and feedback, rather than through formal or marked work.

You will need to approach learning outcomes differently for different circumstances. There are three main circumstances in which we might want to devise learning outcomes:

- for programmes as a whole, to give students an overview of the intended outcomes at the end of their degree course;
- for modules on a course, to show students the skills and knowledge we expect them to have acquired during a discreet unit of learning (this may be a one-semester module, a year-long module, or a thread which runs through a number of years of a programme)
- for individual sessions in a module, to help students grasp what the intentions of the session will be

In each of these circumstances you will want to write a different kind of learning outcome. For programmes you will want to write fairly broad outcomes, which cover a wide range of skills and knowledge and which are unlikely to be directly assessed, but which will be tested by a range of assessments across the modules contained within those programmes. For modules, you will be more specific in the skills and knowledge you are looking for, and these are much more likely to be directly linked to assessments carried out during the module. For individual sessions, the outcomes are likely to be very narrow and specific and you may not have direct formal assessment (although this is of course possible at a sessional level), but the students are more likely to be self-assessing their knowledge or skills, or receiving informal feedback on their progress.

The other difference which you may encounter with the different circumstances is that the number of outcomes may well differ. Around 6-8 outcomes is appropriate for a 15 credit module, there may be more for a programme, and 3-4 outcomes is enough for a single session.

Problems with, and challenges to, the outcomes-based approach

Whilst outcomes-based learning is a widely accepted approach, there have been a number of challenges to it. One legitimate criticism is that it does not give room for creativity. This can be the case when outcomes are either too narrowly framed, or when they are seen as the only possible outcomes from the course. All academics will have examples of unintended outcomes which

individual students, or groups of students, have attained during courses, which they could not have foreseen. Outcomes can be written with space to accommodate such unintended outcomes too.

A second criticism is that an outcomes-based approach can lead to spoon-feeding, and that students can come to see that all they need to achieve is contained within the outcomes for the course. This is usually the case when the outcomes have been written with more of an eye to quality assurance, rather than when they are written with the intention of helping students understand what it is that will be expected to achieve by the end of the course. Outcomes should not be a replacement for a detailed syllabus, nor for guidance on specific assessments that students will undertake.

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