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# Guidelines for Programme and Course

# Design and Approval

Revised January 2025

Table of Contents

**Introduction3**

Sources of Advice3

**Part I: Key Steps in Programme and Course Design4**

1. Establish your design team4
2. Agree Communications4
3. Identify Documents4
4. Create Student Profiles5
5. Identify Your Niche5
6. Plan the Consultations5
7. Scope the Market6
8. Design Your Programme Structure and/or Course Content7
9. Check Coherence7
10. Check Your Resources7
11. Moodle Planning8
12. Consider Evaluation8
13. Submit Documentation for Approval9

**Part II: Putting Pen to Paper – The Pedagogy of Programme & Course Design10**

The 1st Stage of Design: Writing Aims 11

The 2nd Stage of Design: Intended Learning Outcomes (ILOs): 13

The 3rd Stage of Design: Designing Assessments 19

The 4th Stage of Design: Deciding on Teaching Methods and Student Learning Activities35

**Appendices40**

Appendix 1: Assessment Types 40

Appendix 2: Active Learning and Student-Centred Learning Methods 48

# Key Definitions

**Programme:** A suite of courses that lead to an award from the University e.g PhD, BA(hons), PGCAP etc

**Course:** A unit of study which has defined aims, Intended Learning Outcomes, delivery modes, assessments methods and credit value.

**Programme/Course Specification:** These are the definitive documents produced from the design, development, approval and modification processes, which act as the primary source of information about each programme or course.

**PIP (Programme Information Process):** A web system which allows staff to propose and approve new and changed programmes and courses, and to view information about live programmes and courses.

The primary purpose of the system is to administer the University’s Programme and course approval process. Information from the system is published to a Course catalogue and Programme catalogue and automatically feeds into MyCampus.

# Introduction

As a university we are committed to providing a learning experience which is inclusive of the needs of our diverse student body, grounded in real-world challenges and informed by the latest research.

In order to achieve these commitments, it is vital that the design decisions in programme and course design meet a level of rigor that ensures a meaningful student experience and high-quality educational standards. Therefore, this document aims to provide guidance on programme and course design that is both practical and informed by the strategic priorities set out in the [University’s Learning and Teaching Strategy](https://www.gla.ac.uk/myglasgow/learningandteaching/strategy/summary/). Any new programme or course, or major revision to existing provision, needs to reflect the requirements of our diverse student body, good practice in learning, teaching and assessment and the strategic priorities of the University. Following the process described below will ensure that your proposal will align with all of these objectives.

To be a world changing institution, our Learning and Teaching Strategy emphasises the importance of social responsibility, sustainability, and practical and authentic educational experiences. To that end, the University has pledged to significantly contributing to challenges such as the [UN Sustainable Development Goals](https://www.gla.ac.uk/explore/unsdgs/), [civic engagement](https://www.gla.ac.uk/explore/civic/) and [social and economic equality](https://www.gla.ac.uk/myglasgow/equalitydiversity/). Therefore, when designing programmes and courses, it is important to remember that these commitments are not simply abstract ideals. The following guidance, based on pedagogical research, will support you to make evidence-based decisions about how to design programmes and courses, taking into account a range of variables from level of study to student outcomes. Primarily, this is achieved by fostering meaningful assessment and student-centred active learning throughout the academic journey through a degree at University of Glasgow, serving to empower and engage our students, and embedding ethically-based academic and professional practices which can be taken forward in future roles and responsibilities. This document contains guidance about processes and techniques which enable you to implement that research, to create meaningful educational experiences that can support a range of desired outcomes.

When considering how to design a programme or course that supports meaningful assessment and student-centred active learning, you might wish to consider the following questions:

* Why does your programme/course need to exist, and who benefits from having access to your programme/course’s graduates?
* How can you make real-world application clear, using your own distinct worldview and experiences as a professional?
* How can you best support the development of students as the future practitioners of your subject-discipline?

Indeed, there will be many questions to consider when designing the curriculum and these guidelines will lead you through these questions in a logical and sequential way that will result in a programme or course that will satisfy the high quality expected of the UofG curriculum. However, this is not a restrictive and homogenising process, but is instead entirely dependent on your ability to reflect on you and your colleagues’ experiences as experts and practitioners in your field, and your ability to empathise with the needs and worldviews of your students.

## Sources of advice

This document is intended to offer you guidance for programme and course design and review. If you need further advice, Academic & Digital Development have a specific ‘[College Contact](https://www.gla.ac.uk/myglasgow/add/collegecontacts/)’ for each College and they will be happy to advise and support you on all aspects of programme and course design.

# Part 1: Key steps in programme and course design

IMPORTANT FOR NEW PROGRAMMES!

Before you initiate the formal steps of programme or course design, please ensure that you have had conversations with an appropriate senior leader (Head of School or Programme Lead) and your School Finance Team to discuss the viability of your proposal. The Finance Team will be able to offer further advice on whether a market assessment and business case are applicable to you.

1. **Establish your design team**

First, set up a programme/course design team. Think about who will be involved in the day-to-day programme/course experience and aim to have a representative of each on your team (e.g. students [[1]](#footnote-2) from cognate disciplines, lecturers, demonstrators, Effective Learning Advisers, Professional Services administration staff etc). Also consider whether you could involve external academic peers, potential employers, alumni or other interested and informed parties (this might not be possible or necessary in all instances).

1. **Agree communications**

Set up agreed planning mechanisms with your design team. You don’t need to involve every team member in every stage of curriculum design, but making sure that everyone is kept informed as the plans means that key contributions will not be missed. Central to this is consideration of how you will communicate and share documents with your team – a temporary Microsoft Teams Channel could be appropriate for this as it gives you a vehicle for discussion as well as cloud-based file storage.

1. **Identify documents**

Gather all the relevant documentation to help you with your design and particularly those documents that you will need to fill out as part of the programme/course approval process.

Documents you might need include:

* Programme/course Specification and Support Documents (see note on PIP documents below)
* Budget Plan (for new PGT programmes – a template may be available from your School)
* [New Regulations Data Input Form](http://www.gla.ac.uk/media/Media_124408_smxx.docx) (for new programmes)
* [Consultation proformas](https://www.gla.ac.uk/myglasgow/apg/qea/progdesignapproval/programmeapproval/consultations/)

Sources of guidance that you might need include:

* [Accessible & Inclusive Learning Policy](https://www.gla.ac.uk/myglasgow/apg/policies/studentsupport/ailp/)
* [University Regulations](https://www.gla.ac.uk/myglasgow/apg/policies/uniregs/)
* [Course Catalogue](http://www.gla.ac.uk/coursecatalogue/)
* [Guidelines on writing Programme Specifications](https://www.gla.ac.uk/myglasgow/apg/qea/progdesignapproval/programmespecifications/guidancenotes/)
* [Code of Assessment (In University Regulations)](https://www.gla.ac.uk/myglasgow/apg/policies/uniregs/regulations2023-24/feesandgeneral/assessmentandacademicappeals/reg16/)
* [Guide to the Code of Assessment](https://www.gla.ac.uk/myglasgow/apg/policies/assessment/codeofassessment/guide/)
* [The Assessment and Feedback Resources Hub](https://www.gla.ac.uk/myglasgow/learningandteaching/afresourceshub/)
* [The Learning Through Assessment Framework](https://www.gla.ac.uk/myglasgow/learningandteaching/afresourceshub/whatislta/)
* [QAA Subject benchmark statements](https://www.qaa.ac.uk/the-quality-code/subject-benchmark-statements)
* [Scottish Credit and Qualifications Framework](https://scqf.org.uk/about-the-framework/)
* Any relevant frameworks/publications from professional or accrediting bodies
* Advice from [Academic Collaborations](https://www.gla.ac.uk/myglasgow/apg/academiccollaborations/about/) (if you intend to run your provision jointly with an external provider)

**A note on the PIP documents for new users**

If you are working at the programme level, you will need to complete a programme specification and a programme support document**.** If you are working on a new course, you will need to complete a course specification and a course support document. These are the documents required when seeking approval for new programmes and courses and they will need updating if you are making changes to existing provision. Programme specifications also provide details of the different points at which a student can leave the programme with a qualification.

PIP documents provide a framework within which to communicate and record the key features of any programme or course including your aims and ILOs, and how your assessment and feedback strategies and teaching methods/learning activities align with these. It should encompass the intended knowledge, understanding, skills and other attributes that students will have developed on successfully completing a specific programme/course. It needs to be accurate and written in a manner that is readily understandable by current and prospective students and other key stakeholders, such as employers and PSRBs.

The PIP document templates are available to download from the Documents menu in the PIP System. Save these documents in a cloud-based file store and make sure that it is only the shared document that is edited. It’s usually helpful to fill out the documents as you progress through the curriculum design process.

1. **Create student profiles**

Identify who your prospective students are likely to be and what profiles they are likely to have. You may have a fair idea of your subject’s unique student demographic from experience but ask programme directors, professional services and colleagues in your School to sense-check your inferences if you are not sure. Use this information to inform what you need to do to best support the different needs and levels of experience/knowledge that your students may have and try to make your curriculum and course resources inclusive of all your students. The [Accessible and Inclusive Learning Policy](https://www.gla.ac.uk/myglasgow/apg/policies/studentsupport/ailp/policy/) and associated [course design guidelines](https://www.gla.ac.uk/myglasgow/apg/policies/studentsupport/ailp/policy/appendixa/) should be consulted here to ensure that all students will be able to equally participate in your provision.

Questions to ask during this phase are:

* + What sort of educational backgrounds will your students come from?
  + What sort of cultural background will they have?
  + What qualifications are they likely to have?
  + What sort of practical, ‘real world’ experience will they have?
  + What needs might they have in relation to your programme/course?
  + What prior knowledge/skills would they need in order to participate in the programme/course?
  + What entrance level requirements will you set?

1. **Identify your niche**

Place your programme/course in the context of the wider curricula. Contextualising your proposed provision is advised so that it is easy to visualise how and where your programme fits in a School catalogue (i.e. ensuring that your provision fills a meaningful gap in the curriculum), or how your course fits into a programme (i.e. what programme ILOs are fulfilled by your course). Very often, this contextualisation is easy to visualise with a discussion between programme directors and course coordinators. Mapping your provision is also an excellent way of identifying potential gaps in or duplication of content, as well as being very useful for making links with other provision that could be avenues for learning and teaching or research collaboration. If you are designing a course. Consider that it may sit within multiple programmes and therefore may need to be mapped across multiple degrees.

How you approach this step is up to you, but questions you might consider are:

* + How does your course/programme aim link to/complement others in the catalogue?
  + How do your ILO’s help students work towards the [graduate attributes](https://www.gla.ac.uk/media/Media_183776_smxx.pdf)?
  + How and in what order do students encounter the key concepts of the course/programme?
  + How does your assessment timetable/workload fit with other courses or how does it map across a programme?

1. **Plan the consultations**

Identify the key groups you will need to consult with or involve in your planning. It is particularly important that you involve/consult with all members of staff who will deliver the courses and programmes you are proposing or changing so they gain ownership over any changes or new provision. With the current emphasis on student partnership to enhance the student learning experience, it is also very important to engage students in programme/course design and approval, and this can effectively achieved through capturing in-depth opinion from the student/s on your design team and via wider consultation with students from past, potential and current students. Other stakeholders could include, employers, professional contacts, external examiners, student advisers, and so on. There is further guidance on consultation available on the [Academic Policy and Governance webpages](https://www.gla.ac.uk/myglasgow/apg/qea/progdesignapproval/programmeapproval/consultations/). See the table below for a quick guide to mandatory and optional consultations.

When planning consultations, a mixed-methods approach is often most effective. A survey will capture a large (and hopefully representative) range of views, and a workshop or focus group will provide valuable depth to the consultation by facilitating two-way discussion. In terms of timing, do not leave consultation until the end of the design phase.

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Questions to consider at this stage are:

* Who are your key consultees?
* How will you ensure that your consultations empower students and colleagues to inform the curriculum design process, as opposed to giving feedback on the finished design?
* How will you communicate with your consultees, including keeping them informed about the outcome of the consultation?
* When will you carry out the consultations and to what timescale?

1. **Scope the HE ‘market’**

Although this is a formal step for programmes rather than courses, some ‘light-touch’ research can be helpful when designing courses as well. Check out the likely market for your proposed programme/course. Once you have seen how other institutions present their equivalent provision, it is a good time to start thinking about the title for your own programme or course: make sure that it is clear and descriptive, since it is the very first bit of information a prospective student takes in.

For programmes, advice can be sought from your College’s Marketing Manager or from a relevant team in your School (e.g. Connection with Practice team in Adam Smith Business School). Additionally, the Market Intelligence Team in External Relations can complete an initial market assessment for new UG and PGT programmes (advice and further information can be found in the [External Relations webpages.](https://www.gla.ac.uk/myglasgow/externalrelations/marketassessmenttemplate/) Market research involves thinking about the target audience for your programme or course (your students) and why they might choose your programme/course over another in the UK or further afield.

For courses, refer to the student profiles developed in step four and consider:

* + What is the evidence from peers/students/industry that supports the development of your programme/course?
  + What similar programmes and courses are offered in the UK and internationally and what is distinctive about your content, learning opportunities and assessment methods.
  + What skills gaps will your programme/course address?
  + What would be your students’ likely career/further study destinations?
  + Will you aim to attract international as well as home students?
  + How sustainable is the likely pool of applicants you would draw from?

1. **Design your programme structure and/or course content**

This step is the most substantive in the process and will take the most time and thought. Utilise members of your design team as necessary and consider holding a couple of workshops where you can get together and discuss the design.

Detailed advice on how to approach curriculum design can be found below from page 11, but the key tasks are:

* Write aims
* Write intended learning outcomes (ILOs)
* Design assessment and feedback strategy
* Plan learning and teaching content

When designing your provision, care and attention should be given to academic standards. Bring in the [Scottish Credit and Qualifications Framework](https://scqf.org.uk/the-framework/) and the [QAA’s Subject Benchmarks](https://www.qaa.ac.uk/the-quality-code/subject-benchmark-statements) to guide your design, particularly when thinking about your ILOs and Programme Specifications.

1. **Check coherence**

Work out how the different elements of your design integrate to form a coherent programme/course which supports student progression towards the achievement of the aims and ILOs. For example, consider the sequencing of the introduction of new material and tasks so that the student is supported in going from material which is simpler and/or more familiar to the more complex/less familiar. Build in opportunities for revisiting content and processes. Revisit any mapping resources you created in step 5 to check that what you have designed aligns with what you initially planned.

Key questions to consider at this stage are:

* How does your content facilitate the intended learning outcomes?
* Are the key topics introduced and studied in a logical order?
* When and how will you provide academic support from Student Learning Development, The Library, external resources, etc?
* How will you use formative activities to enable students to develop subject knowledge and their academic practice?
* Is there a good balance of learning and teaching methods (both synchronous and asynchronous) that form a cohesive student experience?
* Is the assessment in line with the [Learning Through Assessment Framework](https://www.gla.ac.uk/myglasgow/learningandteaching/afresourceshub/whatislta/)?
* Is the assessment-load appropriate for the number of credits studied and suitably spread across the curriculum?

1. **Check your resources**

Consider all of the resources you will utilise in the teaching of your provision. There will be multiple teams and individuals to consult at this stage and it will be far easier if the key representatives of some of these resources are already in your design team. Check each of the following to ensure that your programme/course is adequately resourced and in line with the [Accessible and Inclusive Learning Policy](https://www.gla.ac.uk/myglasgow/apg/policies/studentsupport/ailp/):

* Have you considered equity of access to the resources, and has this been facilitated where appropriate?
* Do you have teaching staff/GTAs/demonstrators/technicians in place to facilitate learning and teaching, or will you need to recruit?
* Does your College/School administration team have capacity to support your provision?
* Can your provision be timetabled into the curriculum?
* Is there adequate teaching/learning spaces for the number of students you anticipate?
* Does the library have the resource you require? Can your College librarian recommend any alternatives or additional resources?
* Do you require software licences or access to ICT provision outside of the standard supplies?

1. **Moodle planning**

Consider how best to use the Moodle Virtual Learning Environment to support your programme/course and the electronic personal development planning tool [Mahara](https://portfolio.gla.ac.uk/), or other relevant electronic tools to support learning. See available [Moodle course templates](https://moodle.gla.ac.uk/local/template/index.php?category=4920) and the [associated guidance](https://gla.sharepoint.com/sites/learning-innovation/SitePages/Moodle-Course-Template-Wizard.aspx?xsdata=%3d%3d&sdata=c3J0eVNaMjlzWmtHUnl1UzFjOGxxbVJKa2lIc3d2ZFRjZzkxT29aZjMvRT0%3d&ovuser=6e725c29-763a-4f50-81f2-2e254f0133c8%2cJessica.Bownes%40glasgow.ac.uk&OR=Teams-HL&CT=1723028146290&clickparams=eyJBcHBOYW1lIjoiVGVhbXMtRGVza3RvcCIsIkFwcFZlcnNpb24iOiI0OS8yNDA2MjcyNDgxNyIsIkhhc0ZlZGVyYXRlZFVzZXIiOmZhbHNlfQ%3d%3d&SafelinksUrl=https%3a%2f%2fgla.sharepoint.com%2fsites%2flearning-innovation%2fSitePages%2fMoodle-Course-Template-Wizard.aspx) for further information.

When planning this part of your programme/course, consider:

* When and who will build the Moodle infrastructure?
* How will you set up a consistent, trusted, single channel of communication with students – both individually and as a group?
* Will you use Moodle to support formative assessment?
* How will you ensure that resources are uploaded in a timely manner and kept up to date once they are live?
* If using Mahara, will this be for individual student reflection or will entries be reviewed and responded to?
* How and who can the students reach out to if they need support with using Moodle or Mahara?

1. **Consider evaluation**

Regular and in-depth evaluation of the curriculum ensures that we retain high standards and reflect up to date subject knowledge and learning and teaching approaches. There are different evaluation methods for programmes and courses, and there are both internal and external evaluations to consider. The best approach in all cases is to be familiar with the method you should adopt and plan for evaluation from the outset of your teaching provision.

Evaluation for Programmes

There are a number of ways in which your programme could be evaluated over its lifetime:

* The Annual Quality and Enhancement Review is carried out by School Quality & Enhancement Officers each year and all teaching staff and programme/course co-ordinators contribute to the review. See the information on the [University’s webpages](https://www.gla.ac.uk/myglasgow/apg/qea/aqer/) or speak to your School Quality & Enhancement Officer for further information.
* Periodic Subject Reviews are undertaken usually every six years and you may be asked to contribute to your School’s Reflective Analysis and supporting documentation which forms the basis of the review. PSRs are managed by Academic Policy & Governance and more information about the process can be found on the [APG webpages](https://www.gla.ac.uk/myglasgow/apg/qea/periodicsubjectreview/).

Evaluation for Courses

The University has a [Course Evaluation Policy](https://www.gla.ac.uk/myglasgow/apg/qea/courseevaluation/) which detailsthe minimum standards for course evaluation. The policy and associated webpages are helpful to determine the core questions you should be asking in your course evaluation questionnaire, and to find out more about Evasys – the survey platform used to collect evaluation data. The survey is the minimum standard for all courses at the university, but your School may have additional review processes you are required to follow (these are usually communicated via the School Learning and Teaching Committee).

Of course, a large sample size and a mixed methods approach to data collection is beneficial to creating an accurate account of students’ experiences, therefore if your School does not currently evaluate courses beyond the University’s minimum standards and you think there would be benefits to doing so, this can be raised with your School Learning and Teaching Committee. If you are considering this, the below questions might be helpful to consider:

* What is the benefit of the additional evaluations?
* Who will you need to consult with?
* How will you obtain useful data – e.g. quick questionnaires vs focus group discussion?
* How will you report the data?
* How will you action the resulting recommendations and close the feedback loop?

1. **Submit documentation for approval**

Review and complete all relevant programme/course approval documentation and submit them to the relevant College committee for approval using the [University’s PIP online system](https://www.gla.ac.uk/myglasgow/it/pip/). For further details, guidance and access to appropriate forms see the [Academic Policy & Governance webpages on Quality Enhancement and Assurance](https://www.gla.ac.uk/myglasgow/apg/qea/).

# Part II: Putting Pen to Paper – The Pedagogy of Programme & Course Design

**What do I need to know about Designing Programmes and Courses before I begin?**

It is important to remember, whether designing a programme or a course, you are creating a *purpose-built experience*. That purpose is to enable students to do something they were not able to do before. Thanks to extensive research and scholarship in fields across both the sciences and the humanities, we have learned that these experiences can be designed to achieve their purpose more effectively. Below you’ll find a non-exhaustive list of some key assumptions that can be derived from that work, and which underpin the guidance you’ll receive in this section of document:

* Knowledge cannot be ‘downloaded’ into a student’s head. A learner ‘constructs’ a model of reality by making sense of experiences and information (Vygotsky & Cole, 2018)
* Learning is based on what the student does, as a result of the cognitive, attitudinal, and psycho-motor actions students engage in(Biggs, 1996; Kahu, 2013).
* A focus on performativity inhibits learning, meaning feedback is more useful to learning than marks and the motivation they provide(Carless & Boud, 2018; Nicol, 2006).
* Learning can be viewed as a cultural experience, where experts are a community, and teaching is actually a process of acculturating novices into that community. Thus, inclusivity is key to effective teaching (Bloch et al., 1994; Hockings, 2010; Vygotsky & Cole, 2018)
* In almost any given situation, certain activities are better suited to assess learning than others, because some activities will more inherently require the cognitive, attitudinal, and behavioural actions you’re teaching(Biggs, 1996; Roßnagel et al., 2020).

Using this expertise to create effective experiences can actually be as simple as answering specific questions in a specific order. By answering those questions in an optimum order, each question should become successively easier to answer with less subjectivity and in greater detail (see the figure below). Being able to answer these questions can also help you recognise when you may need to adapt your teaching, and how to adapt it, without compromising the overall purpose of the experience.

A diagram of a learning process

Description automatically generated

These questions are based on the principles of Constructive Alignment, a design approach used in HE across the UK, Europe, Australia, and the US. Using the literature referenced above, this approach has been consolidated into a clear design methodology created by Education PhD’s here at The University of Glasgow. **Below you’ll find Descriptions**, **Tips**, **and** **Writing Prompts to help you develop each stage of learning design**, while simultaneously producing the information needed for your PIP documentation.

For ease, much of the sections are predominantly focused on course design. However, as the principles of Constructive Alignment work at scale, **implications for programme design will be clearly noted, and can otherwise be derived** throughout the guidelines.

## 4. Writing Aims – The 1st Stage of Course Design

## The 1st Stage of Course/Programme Design: Writing Aims

**TIPS**

**PROMPTS**

**Improving Aims through Inclusivity: Accessible & Inclusive Learning Policy (AILP) Reflective Prompts for Course Design**

## 5. Intended learning outcomes (ILOs) – The 2nd Stage of Course/Programme Design

**The 2nd Stage of Design: Intended Learning Outcomes (ILO’s)**

Intended learning Outcomes (ILO’s) are statements that describe what a student should be able to demonstrate by the end of the course/programme. They specify what content you will cover and how you expect students to use that content, **For example:**

(Kahu, 2013; Kahu & Nelson, 2018; Roßnagel et al., 2020; Sotiriadou et al., 2020)

**TIPS**

Anatomy of an ILO

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ILO Verbs from the Affective Domain of Learning** | | | | | | |
| The affective domain deals with our attitudes, values, and emotions. It is the "valuing" domain. The table below outlines the five levels in this domain and verbs that can be used to write learning objectives. | | | | | | |
| Introductory & Foundational🡪  (i.e. Years 1 & 2 of UG) | | 🡪Intermediate & Practical 🡪  (i.e. Years 2 & 3 of UG) | | | 🡪Advanced & End-level  (i.e. Years 3 & 4 of UG) | |
| **Receiving** | **Responding** | | **Valuing** | **Organisation** | | **Characterisation** |
| Openness to new information or experiences | Active participation in, interaction with, or response to new information or experiences | | Attaching value or worth to new information or experiences | Incorporating new information or experiences into existing value system | | Full integration/ internalization resulting in new and consistent attitudes, beliefs, and/or behaviours |
| Ask  Choose  Describe  Follow  Give  Hold  Identify  Locate  Name  Select  Reply  Use | Answer  Assist  Aid  Compile  Conform  Discuss  Greet  Help  Label  Perform  Practice  Present  Read  Recite  Report  Select  Tell  Write | | Complete  Demonstrate  Differentiate  Explain  Follow  Form  Initiate  Join  Justify  Propose  Read  Share  Study  Work | Adhere  Alter  Arrange  Combine  Compare  Complete  Defend  Formulate  Generalize  Identify  Integrate  Modify  Order  Organize  Prepare  Relate  Synthesize | | Act  Discriminate  Display  Influence  Listen  Modify  Perform  Practice  Propose  Qualify  Question  Revise  Serve  Solve  Verify  Use |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ILO Verbs from the Cognitive Domain of Learning** | | | | | |
| The cognitive domain deals with how we acquire, process, and use knowledge. It is the "thinking" domain. The table below outlines six levels in this domain & verbs that can be used to write learning objectives. | | | | | |
| Introductory & Foundational🡪  (i.e. Years 1 & 2 of UG) | | 🡪Intermediate & Practical 🡪  (i.e. Years 2 & 3 of UG) | | 🡪Advanced & End-level  (i.e. Years 3 & 4 of UG) | |
| **Remember** | **Understand** | **Apply** | **Analyse** | **Evaluate** | **Create** |
| Retrieve relevant knowledge from long-term memory | Construct meaning from instructional messages, including oral, written, and graphic communication | Carry out or use a procedure in a given situation | Break material into its components and determine how they relate to one another and to an overall structure or purpose | Make judgments based on criteria and standards | Put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure |
| Arrange  Cite  Choose  Count  Define  Describe  Duplicate  Identify  Label  List  Locate  Match  Name  Outline  Recall  Recite  Recognise  Record  Repeat  Restate  Review  Select  State | Abstract  Associate  Categorize  Clarify  Classify  Compare  Conclude  Contrast  Exemplify  Explain  Extrapolate  Generalize  Illustrate  Infer  Interpret  Map  Match  Paraphrase  Predict  Represent  Summarise  Translate | Apply  Carry out  Demonstrate  Determine  Develop  Employ  Execute  Implement  Operate  Show  Sketch  Solve  Use | Analyse  Attribute  Deconstruct  Differentiate  Discriminate  Distinguish  Focus  Organise  Outline  Parse  Select  Structure | Argue  Assess  Check  Conclude  Coordinate  Criticise  Critique  Detect  Evaluate  Judge  Justify  Monitor  Prioritise  Rank  Rate  Recommend  Test | Assemble  Build  Combine  Compose  Construct  Create  Design  Draft  Formulate  Generate  Hypothesise  Integrate  Plan  Produce |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ILO Verbs from the Psychomotor Domain of Learning** | | | | | |
| The psychomotor domain deals with manual or physical skills. It is the "doing" domain. The table below outlines the five levels in this domain and verbs that can be used to write learning objectives. | | | | | |
| Introductory & Foundational🡪  (i.e. Years 1 & 2 of UG) | | 🡪Intermediate & Practical 🡪  (i.e. Years 2 & 3 of UG) | | 🡪Advanced & End-level  (i.e. Years 3 & 4 of UG) | |
| **Imitation** | **Manipulation** | | **Precision** | **Articulation** | **Naturalisation** |
| Observing and copying another's action/skill | Reproducing action/skill through instruction | | Accurately executing action/skill on own | Integrating multiple actions/skills and performing consistently | Naturally and automatically performing actions/skills at high level |
| Adhere  Copy  Follow  Repeat  Replicate | Build  Execute  Implement  Perform  Recreate | | Calibrate  Complete  Control  Demonstrate  Perfect  Show | Adapt  Combine  Construct  Coordinate   Develop  Formulate  Integrate  Master  Modify | Design  Invent  Manage  Project  Specify |

**PROMPTS**

## 6. Designing Assessment: The 3rd Stage of Course and Assessment Design

**The 3rd Stage of Design: Designing Assessment**

**STOP**

**The Purpose of Assessment:**

To observe learning, with minimal subjectivity, towards a meaningful goal

Let’s break this down!

Assessment Design is a complex process that requires multiple considerations.

This section will provide you with the following:

Along the way you will be directed to resources and tools that can help you consider and implement other aspects of assessment design that the University considers vitally important, such as:

* Iterative assessment, for a scaffolded developmental assessment experience.
* Programmatic assessment, for a cohesive assessment experience across a degree programme.
* Inclusive assessment, for ensuring equity and reducing unnecessary barriers to students’ demonstration of learning.

### 6.1 Constructive Alignment: The Basic steps of choosing an Assessment Method

**Constructive Alignment:**

The Basic Steps of Choosing an Assessment Method

**GO**

#### Step 1: Assemble your Aims and ILOs

These will serve as vital reference materials in the following steps. If you’ve put due thought and consideration into your Aims and ILOs, then you’ve already made assessment design less subjective. Combined with your personal experience and with some key resources such as the Learning Through Assessment Framework, you can start making some fundamental decisions to shape your assessment.

#### Step 2: How many assessments do you need?

Best practice tells us that the number of marked assessments (Summative assessment) should be proportional to the number of credits on offer. i.e.

20 credits = 2 marked assessments

30 credits = 3 marked assessments

Example timeline for a 20 credit course:

#### Step 3: Ensuring Programmatic Assessment

**Programmatic assessment** is a way of ensuring assessments are linked across courses and programmes, giving students a connected learning experience, and helping staff reflect on what they assess, and why and how they do this. Assessment on one course may prepare a student for the content covered in the next course or can tie into assessment of a student’s performance across their whole programme.

For more on this, including curriculum mapping, see [The Assessment and Feedback Hub](https://www.gla.ac.uk/myglasgow/learningandteaching/afresourceshub/).

A key step in ensuring that your assessment is programmatic, is determining the programmatic function your assessment has in a programme. There are three types of programmatic functions:

#### Step 4: Selecting an assessment method

When choosing the method for the final assessment in a course or programme, you must ensure that actions taken by the students’…

* Requires the actions described in all or most of your ILOs.
* Reflects the experiential characteristics of the Aims.
* Speaks to the needs of stakeholders in your Aims.
* Are clearly applicable to a real-world common for experts in your field.

Selecting an assessment method begins by taking key information from the design decisions made thus far and using that information as 'Design Criteria.' From there, you have two options for selecting and refining your method. Follow the steps below to see which option is right for you and continue through the document to find the relevant examples and instructions.

**Selected Method**: Now, you can simply choose which one to model your assessment after. In this example, the lecturer chooses to build the assessment around Scenario ii. This is because it addresses the values to the intended stakeholders of the course (both students and research in the field) and requires all the ILOs without requiring other types of actions which aren’t fair to assess at this point – like generating a PhD proposal (i), or recommending a diagnostic test (iii).

* **You can now proceed to 6.2 Ensuring Assessment is a Meaningful and Effective Experience for Students: A Reflective Checklist**

**Next:** Access the University’s [Assessment Methods](https://www.gla.ac.uk/media/Media_984149_smxx.docx) Document

You can also reference Appendix 1 in this document.

Next: Search the document using key terms from your prompt responses. Start with those that include ILO verbs. Even if you used additional terms from Bloom’s (or similar) in your response.

Example Search terms (taken from example response):

* Structure
* Organise
* Determine

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**Why a matching test be appropriate?**

Mix and match activities would also be appropriate here. Students can match the psychological concept to the physiological response and the appropriate measurement. This would be particularly useful if the terms are simplified and familiar. This would aid students’ confidence by making the assessment as easy as possible without compromising the core cognitive skill at stake.

**Trouble finding an appropriate method? – Try these tips!**

* Try using only the first few letters of your search term
* Search by similar verbs in the same category of Bloom’s Taxonomy – you may find a better verb for your ILOs!
* Search using key terms from your Aims

**You can now proceed to 6.2 Ensuring Assessment is a Meaningful and Effective Experience for Students: A Reflective Checklist**

### 6.2 Ensuring Assessment is a Meaningful and Effective Experience for Students: A Reflective Checklist

## Ensuring Assessment is a Meaningful and Effective Experience for Students: A Reflective Checklist

#### Step 5: Tailoring your assessment

The previous stage of the assessment design focused on selecting a ‘raw’ assessment method. This stage of assessment design, focused on **Meaningful Assessment**, is about tailoring your ‘raw’ assessment method to your students and making it fit for purpose.

*If assessment is effectively an experiment that answers the research question “how much have students learned?”, this stage of the design is about refining your research method to include only for the relevant dependent and independent variable and making sure you’ve controlled for all the non-relevant variables.*

Making an assessment meaningful is how you transform a ‘raw’ assessment method into an effective tool for capturing and observing learning.

In this stage, you should interrogate your chosen assessment method, by responding to the prompts in the **“Meaningful Assessment Inventory”**. This is best done by using the material you’ve generated thus far as a reference (Aims, ILOs, and associated notes and reflections on rationale). Proceed to the prompts below and note your responses. Consult hints and example responses for guidance.

**The Meaningful Assessment Inventory:**

* Why are you teaching your students this ‘content’?
  + *Hint: What do your aims say about the value of this learning? And the wider benefit to stakeholders beyond students.*
* What is it you want them to know/learn/understand/be able to do?
* How could they prove to you they ‘get it’?
  + *Hint: Are the contexts of your ILOs specific enough to help you answer this?*
* How would they show you in a work environment that they are using this knowledge/understanding? How would they show themselves?
* How does this course and this assessment fit into the programme of your students’ learning, build on their current skills, and prepare them for future assessments?
  + *Hint: How can you ensure that the Of/For/And status of your course has clear implications on the final assessment design?*

**Continue to the next page for examples**

**Example: An Evidence-based, Constructively Aligned,**

**Assessment method**

**Example: A Real-world, Constructively Aligned,**

**Assessment method**

##### Example Assessment Briefs

## Formative Assessments: The Pillar of the Student Experience

### 6.3 Formative Assessments: The Pillar of the Student Experience

#### Step 6: Creating Supportive Formative Assessments

**What is formative assessment?:** Current research in teaching, learning, and assessment has developed an understanding of the vital role of formative assessment. **Formative assessment comes before summative assessment**; they test what students have learned so far, but **not for the purposes of giving marks**. Instead, **formative assessments exist to generate the feedback that helps students see how they’ve developed and provides students with guidance on how to develop as the learning proceeds**.

**Tip for Designing Programmes:** Consider bringing a formative assessment design approach to some of your 2nd and 3rd year summatives. Anywhere a summative performs an Assessment FOR Learning function in the programme, even if those summatives still need to be marked. This will help students greatly as they move on to more advanced courses.

(Dweck et al., 2004; Kahu & Nelson, 2018; Nicol, 2006; Rivera & Garden, 2021)

**Important Note:** Formative assessment *does not take away from teaching time*. It is arguably some of the most important and effective teaching you can do (Jessop & Tomas, 2017; Nicol, 2006; Yorke, 2003).

**IMPORTANT NOTE:** where possible, avoid *“general feedback to the group”* as your only feedback mechanism.

(Carless & Boud, 2018; Jessop & Tomas, 2017; Nicol, 2006; Rivera & Garden, 2021; Wilder, 2022; Wilder-Davis, 2021; Winstone et al., 2017; Winstone & Boud, 2020)

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**Conveying Your Assessment Design in the Course Submission Form.**

Convey the assessment experience by being specific about the action students will take and the points at which they’ll exercise different cognitive actions (i.e. ILO verbs).   
**You do not need to provide the entire assessment brief.**  
It's about providing the information the reader needs to see the assessment method, how you’ve tailored that method to your students, and be able to judge whether this is appropriate based one Aims and ILOs.

Ensure your percentages are broken up according to your description in Box 19. You can even write-in assessment methods if your chosen method isn’t listed

Diagram your assessment description, showing how specific aspects of the assessment map to the individual ILOs

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Grading Basis: Schedule A is more commonly used, and means that marks provide gradients of a letter grade (i.e. A1 vs A2). Schedule B is for unique situations where only A,B,C etc are appropriate.

Conveying constructive alignment is just as important for formative assessments as it is for summative assessments. In Box 21, this also means showing where the opportunities for feedback are and being specific about the types of feedback.

## 7. Deciding on teaching methods and student learning activities

**The 4th Stage of Design: Deciding on Teaching Methods and Student Learning**

For even greater detail on Active Learning, see the [UofG Online Resources](https://uofgadd.team/al-hub/alpedagogies/)

### 7.1 How to Design A learning Activity

#### Examples and learning activity recommendations for effective experiential learning

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Additional simple activities are listed for each stage. These can take the place of or be adapted the active learning methods in this document.

**Before You Finalise Your Design**

**STOP**

Course design is best achieved when the process is iterative: considering fundamentals principles of design, and then complicating how you implement those principles. At this point you will have made a number of decisions. **Now, is a perfect time to look back on what you’ve done with perspective that can enhance the effectiveness of your day-to-day teaching.** To do this, you can use the **Accessible and Inclusive Learning Policy PIP Checklist**, as a way of looking for opportunities to easily avoid barriers to learning for all students. This is also **ESSENTIAL** in the official course submission process.

**Accessible & Inclusive Learning Policy (AILP) PIP Checklist**

| Please consider if your course utilises or significantly depends on any of the following teaching methods, subject content, or materials that may impact your responsibilities for ensuring the inclusivity and accessibility of your students' learning: | Yes/No |
| --- | --- |
| Communicating information through charts and graphs | Y/N |
| Outdoor mobility, i.e. field work | Y/N |
| Audio materials i.e. recorded lectures or examples | Y/N |
| Activities requiring precision hand movements hand-eye coordination | Y/N |
| Sensitive subject matter, including that relating to protected characteristics, such as racism, sexism, homophobia, transphobia, assault, colonisation, genocide | Y/N |
| Racial and gender representation in reading and materials that disproportionately features one demographic over others | Y/N |
| Communicating ideas via oral presentations | Y/N |
| Group work | Y/N |
| Printed materials not available electronically | Y/N |
| Timed assessments | Y/N |
| In person assessments | Y/N |

**GO**

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# Appendix 1: Assessment Types

|  |  |  |
| --- | --- | --- |
| **Assessment** | **What does the student do?** | **What is this useful for/how can this be used?** |
| Abstract | Students write an abstract of a research paper/article within a specified word limit e.g. 300–500 words. | Allows students to demonstrate understanding of a topic, ability to summarise, and practice the skill of good abstract writing. |
| Advertisement | Students write an advert for a role that they might fill, or that might need filled within a project team | Allows students to consider the skills they need to develop, or that are needed for a particular project/type of work |
| Annotated bibliographies | Students produce a list of texts, primary sources and internet sites on specified or agreed topics to a particular referencing convention. They annotate these with a commentary, which could include an evaluation of what they have read. | Allows students to demonstrate breadth/depth of reading, understanding of relevant texts, and ability to research. |
| Articles for different audiences | Students are asked to write on a particular topic(s) to an agreed length in a specific style e.g. a journal, newspaper or leaflet. | Allows students to demonstrate ability to communicate with different audiences and shows how well they understand the topic. |
| Assessment stations (aka OSCEs) | Most often used in Med/Vet/Dentistry, students move around a series of testing stations being assessed on a number of skills, each for a fixed period of time. | Allows students to demonstrate a wide range of practical skills and knowledge. |
| Blog | Students are required to keep an individual blog. | Allows students to record progress, write for other audiences, make links to other relevant websites etc. |
| Brochure | Students are asked to write on a particular topic(s) to an agreed length for a specific audience | Allows students to demonstrate ability to communicate with different audiences and shows how well they understand the topic. |
| Budget with rationale | Students are asked to create a budget and justify it (note: this could also be a costed business case). Allows students to consider the cost of a project/lab/case work/trip etc etc | Allows students to show their understanding of the costings required for any project and justify why those finances are required. |
| Case study/analysis | Students are required to work through a case study to identify the problem(s) and to offer potential solutions | Useful for assessing students’ understanding and for encouraging students to see links between theory and practice.  *Note: case studies could be provided in advance of a time-constrained assessment.* |
| Chart, graph, visual aid | Students produce a visual representation of data. | Tests a number of skills: understanding of data, understanding useful/correct visual representation of data, understanding of audience who the visual representation is for. |
| Client report for an agency | Students produce a report on a topic/subject/project/etc for an outside agency | Students demonstrate their ability to communicate the ‘important’ information to a fictitious client. |
| Concept maps/cognitive map/web/diagram | Students map out their understanding of (or research about) a particular concept. This can be used as a precursor to a larger piece of work (e.g. as formative work for summative work later) | This is a useful to provide feedback to students on their work and to staff on students’ understanding of the topic. |
| Create something | Students make or design something, e.g. podcast, prototype, video clip, webpage etc. | Tests students’ design/creativity skills and understanding of a brief, of any technical aspects of a ‘build’ etc |
| Debate | Students argue different sides in a debate on a specified topic. | Demonstrates research into a topic, ability to argue a case/point, ability to listen to others and counter an argument |
| Definition | Students create definitions of words/concepts. | Demonstrates understanding. Can also be used as part of group work where a shared glossary is created, and students edit each other’s work |
| Description of a process | Students describe how something works. | Allows students to show that they understand the process |
| Diagram, table | Students produce a visual representation of data. | Tests a number of skills: understanding of data, understanding useful/correct visual representation of data, understanding of audience who the visual representation is for. |
| Dialogue | Creating or engaging in dialogue | Allows students to show their understanding and, if the dialogue is aimed a specific audience, their ability to translate their knowledge for that audience |
| Draft | Students write a draft of a piece of work | This is a great way to support students and check their understanding of both the topic ad the criteria for a piece of assessed work. |
| Executive summary | Students write a summary of a report, either as a draft of the report, or of an actual report | Students demonstrate ability to summarise the most important points, or ‘message’ for a specified audience |
| Fill in the blank test | Students fill in blanks in statements | Demonstrates knowledge of key words/concepts/definitions |
| Flowchart | Students create flowcharts of processes relevant to the subject/discipline | Demonstrates understanding of how the processes to achieve a proscribed outcome might be achieved |
| Funding bid | Students create relevant funding bids, sometimes using actual funding bid forms, sometimes a simplified version | Allows students to practice funding applications |
| Group discussion | Students take part in discussions about a specific topic, often with preparation. Discussion may, however, be to work out what students already know about a topic to then lead to further work/research. | Allows students to practice making verbal arguments or explain concepts/theories |
| Instructional manual | Students create instruction manuals for another audience – maybe other students, or an outside audience | Demonstrates communication appropriate to the audience which requires solid understanding of a topic/theory/concept |
| “Introduction” to an essay or report (rather than the full report) | Students can write either just an introduction or are only graded on the introduction as part of the report | Allows students to demonstrate ability to concisely explain the background to a theory/topic/subject/concept |
| Laboratory reports | Students are required to write a report for a laboratory exercise. | Demonstrates understanding of steps/processes undertaken during experimentation and interpretation of results. |
| Learning logs | These are lists of activities and outcomes which students check off during a period of learning. For example, students could be asked to indicate competencies which they have practised to a specific level during a work placement. | Allows students to show they have completed tasks required of them and may include reflection on those tasks. |
| Letter to the editor | Students write a letter to the editor of a newspaper/journal/magazine in relation to a current story or paper | Demonstrates construction of an argument supporting or challenging a current ‘story’. |
| ‘Live’ exercise | Students are provided with an initial dossier of papers to read, prioritise and work on, with a variety of tasks and new information given at intervals throughout the period the exercise runs. | This is usually a problem-solving exercise and often enables multidisciplinary teams (either across years, or across subject specialisms) to work together towards an outcome. |
| Matching test | Students match items. Often used with diagrams and series of labels, or with matched statements. Matching can be simple or complex. | Students show that they know elements of (for example) structures, or requirements. May also include relevance of matched items |
| Materials and methods plan | Students draft a plan for the materials and methods they will use, or would use, in a practical setting | Demonstrates planning for practical work |
| Mathematical problem | Students solve mathematical problems | Demonstrating ability with formulae, mathematical processes etc. |
| Media profile | Students are asked to use pictures or headlines from newspapers and magazines to illustrate the public perception/profile of a particular aspect of the subject. They can also write responses. | Students analyse the public perception of a topic/theory/project etc. Useful for considering accuracy of reporting (fake news) etc. |
| Memo | Students write a short piece explaining a concept/theory etc | Students demonstrate ability to summarise, communicate essential points and show that they understand these. |
| “Micro-theme” (a tight, coherent essay typed on a 5x 8 note card) | Students write a very short piece explaining a concept/theory etc | Students demonstrate ability to summarise, communicate essential points and show that they understand these. |
| Mini-practical | This involves a series of mini practical sessions. Can be conducted under timed conditions. | Creates the potential for assessing a wide range of practical, analytical and interpretative skills |
| Multimedia or slide presentation | Students create a presentation about a concept/theory/project etc | Demonstrates communication skills and understanding of key points of concept/theory/project etc |
| Multiple-choice test | Can be useful for diagnostic, formative assessment, in addition to summative assessment. | Well-designed questions can assess more than factual recall of information. |
| Narrative | Students write a narrative piece about a concept/theory/project etc | Demonstrates ability to create a narrative and to write for a specific audience |
| News or feature story | Students write a news/feature about a concept/theory/project etc | Demonstrates ability to write in style and for a specific audience |
| Notes on reading | Students write short notes on a reading covering key elements of that reading, usually for a specific purpose. | Demonstrates ability to summarise, to identify key points and to create useful notes |
| Observation | Students are observed whilst undertaking some form of ‘performance’. This is commonly used in teaching classroom practice and laboratory work. | Students demonstrate proficiency with practical skills |
| Online discussion boards | Students are assessed on the basis of their contributions to an online discussion for example, with their peers; this could be hosted on a virtual learning environment (VLE). | Students demonstrate engagement with the topic and with their peers |
| Open book exams | Students have the opportunity to use any or specified resources to help them answer set questions under time constraints. | Removes the over-reliance on memory and recall and models the way that professionals manage information. |
| Oral report/presentation | Students are asked to give an oral presentation on a particular topic for a specified length of time and could also be asked to prepare associated handout(s). | Can usefully be combined with self- and peer-assessment. Demonstrates communication skills and ability to summarise |
| Outline | Students prepare an outline, or plan, for any forthcoming piece of work. | Demonstrates ability to summarise and to show thinking/structure |
| Part-written practical reports | Lab sheets given to students provide some of the write-up in full but leave sections such as error analysis, theoretical explanation etc. for the students to complete. | Supported way to introduce students to new concepts or to remind students of steps/stages in a practical whilst testing their ability with the work. |
| Patchwork texts | Students write a number of small pieces of work (‘patches’), which they then have to later ‘stitch’ together in a reflective commentary. The patches and the tasks upon which they are  based are discrete and complete entities in their own right. | Allows students to show that they understand each element and so enhances understanding of the content as a whole. Spreads assessment across a course rather than relying on high stakes assessment |
| Performance | Students are required to give some form of performance, e.g. concert, play, dance, poem, choreography etc. | Demonstrates ability in that aspect of performance |
| Personal letter | Often instigated as a letter to next year’s students, or to their peers. | Supports students to reflect on what they do, or do not, understand. |
| Plan for conducting a project | Students write a project plan before undertaking the work | Ensures students know what they need to do to complete the project. Provides opportunity for support/feedback, particularly for students who are less confident |
| Portfolios / e-Portfolios | Students provide evidence for their achievement of learning outcomes; these commonly incorporate a reflective commentary. | Allows students and staff to keep track of completed work and to reflect on, or provide support for, achievements throughout a course. |
| Poster | Students are asked to produce a poster (either ‘real size or as a PowerPoint file) on a particular topic. | Can be used individually or in groups to assess a range of activities |
| Problem sheets | Students complete problem sheets, e.g. on a weekly basis. | This can be a useful way of providing students with regular formative feedback on their work and/or involving elements of self- and peer assessment |
| Question banks | Students are assessed on their ability to produce a certain number of questions on a topic. This helps students to recognise what they do and do not understand about a topic. PeerWise is one piece of software used for this at the University of Glasgow ([https://peerwise.cs.auckland.ac.nz/](about:blank)) | Ensures students understand the topic they write the question about. Can be useful for students for revision too. |
| Reflective diaries | Students record their learning over a period of time, with an additional reflective commentary which could support the development of an action plan. | Reflection can support a student to understand how well they are meeting the learning outcomes and what they need to do to improve |
| Regulations, laws, rules | Students identify and (perhaps) comment on the relevant regulations (etc). Or they write their own. | Enables students to understand the context/framework relevant to them. |
| Research project | Students undertake a research project individually, or in groups. | Students can demonstrate practical, analytical and/or interpretative skills as well as knowledge and understanding. |
| Research proposal | Students write a proposal for a research project. This may include a proposal for funding | Ensures students know what they need to do to complete the research. Also provides opportunity for support/feedback, particularly for students who are less confident |
| Review of exhibit | Students review an exhibit for a specific purpose. It could be (for example) the history of the object, or the science or a critique of the exhibit, or how the exhibit is used. | Can be used in many ways, dependent upon the purpose. Tests ability to communicate, to create an argument, to think and write about a subject form a different perspective etc |
| Review of website/journal article | Students write an account or make an oral presentation reviewing a website/article (or similar). | Can include an evaluative element to demonstrate  depth of reading and level of understanding in concise formats |
| Role play | This is traditionally a ‘performance’ done in pairs/as a group. However, students could write or give a presentation taking on a particular role, e.g. a journal reviewer/editor, consultant, art critic etc. | Encourages students to see things from a different perspective and to argue/discuss from that role. |
| Seen exams | Students are provided with the questions to be answered in a time-constrained context in advance. Alternatively, the examination topics may be released in advance, but the specific questions are unseen until the exam. | Removes some of the anxiety of unseen exams and the ability to simply reply on recall, enabling preparation. |
| Selective or sampling report | Students are asked to either write specific sections of a report (e.g. methods section) or write practical reports in full but know in advance which elements of the report will be assessed | Allows students to develop skills in one area of report writing at a time. |
| Short answer questions | Students answer question with short written responses. | Useful to assess a wide range of knowledge/skills across a module. Often recall-based which, occasionally, may be essential in some subject areas. |
| Simulations | Text or virtual computer-based simulations are provided for students who are then required to answer questions, resolve problems, perform tasks and take actions etc. according to changing circumstances within the simulation. | Useful for assessing a wide range of skills, knowledge and competencies. |
| Statement of assumptions | Students write the assumptions they need to make, or the assumptions they are making, before continuing with a piece of work. | Supports students to consider how they think about a concept/theory/project etc and to help them to understand how assumptions can impact on a successful outcome. |
| Wiki | Students create a wiki, usually in groups, to explain concepts | Creating a wiki page requires understanding of the topic and of how to communicate that understanding to an audience. |

# Appendix 2: Active Learning and Student-Centered Learning Methods

**World café**

The world café is a cooperative learning technique that can be used to crowd-source ideas and solutions in small groups. Typically used in conferences to stimulate discussion (Cassidy and Fox, 2013), this relaxed conversational technique also lends itself to student learning where there are several problems or considerations to investigate, and it supports constructivist learning in the sense that students develop their understanding by reflecting on and adding to the contributions of others, by moving around several tables in succession.

**Jigsaw Classroom**

The jigsaw classroom is as it sounds – students are divided into small groups to complete an investigative task. Within each group, each person is assigned a topic – e.g. topic 1, 2, 3, 4, 5. All the ‘1’ students move to a single group (as do ‘2’, ‘3’, ‘4’, ‘5’ students) and research the topic together. In the third part of the exercise, the students move back into their original groups and share the outcomes of their focused research with their original group, for writing up outcomes (Keyes, 2019).

**Flipped Classroom**

Also called the inverted classroom, the flipped classroom capitalises on the affordances for technology-enhanced learning to allow students to prepare for a face-to-face class beforehand. This might involve working through online study resources independently, particularly if these resources are normally delivered in an ‘information transmission, teacher focused’ approach to teaching. Pre-session work then allows the face-to-face time to be used for more challenging activities that students undertake collaboratively in class (Bishop and Verleger, 2013).  Teaching and learning in this form requires a shift in thinking on the part of the lecturer and an associated re-design of the class or course, however this can be achieved incrementally over time and the investment is hugely worthwhile in terms of lecturer and student satisfaction. If you do adapt your approach, it is important that you do not then revert to ‘lecture’ mode as this sets the expectation that students do not need to prepare before class. One common question asked is how to check that students have done their preparatory work. This could be evidenced by completion of an online activity, such as a quiz or wiki that documents each individual learner’s contributions.

**Team-based Learning**

TBL capitalises on some aspects of the flipped classroom. Students are invited to prepare for the class, which is organised to support learning in teams. According to Michaelsen (2011), the four key elements of TBL are as follows:

1. Strategically formed, permanent teams – the teacher puts students into small groups and students remain in their groups for the rest of the course.
2. Readiness assurance – after completing the pre-session work (i.e. using a flipped format), students test their ‘readiness’ for learning through an individual multiple-choice test, and then a team readiness test, whereby the members of the team discuss their answers and agree on their preferred answer. A scratch card is used to enable the team members to scratch off their preferred answer, getting immediate feedback each time until they get the correct answer. Students can choose to ‘appeal’ as to why their answer is the correct one. The lecturer then presents a short lecture to clarify any misconceptions.
3. Application tasks – In teams, working in tandem, students are assigned an authentic problem to solve; they then report their findings to the class simultaneously, which allows for discussion of potential solutions.
4. Peer evaluation – students provide feedback to each other on their contributions to the tasks.

**SCALE-UP**

SCALE-UP (Student-Centred Active Learning Environments with Upside-Down Pedagogies) is another flipped classroom technique, where students come to class and work in three groups of three (typically around a round table of nine), with each set of three being allocated specific roles (manager, scribe or sceptic) to adopt when engaged in authentic problem solving (Beichner et al., 2007). Each trio can then share and discuss their findings with the other trios at their table, before sharing their outcomes with the class as a whole.

**Medical / Clinical Techniques**

Some techniques have developed within clinical/medical education and appear to be most frequently used in these contexts – such as the ‘fish bowl’, where students observe other students engaged in an active learning experience such as interviewing a simulated patient (Sutherland et al., 2012) and provide feedback, though this could be applied to any active learning task.

Another technique is ‘doughnut rounds’ (Fleiszer et al., 1997), where students select a weekly piece of reading and then test their peers on its content in rounds of questions in a game show format. The doughnut aspect does not relate to any structural organisation of the groupwork, but instead to the attending surgeon bringing doughnuts and acting as a moderator.

### General methods and approaches to student-led learning include:

**Problem- based learning (PBL)**

The learning process is organised around problems. The idea is that any course starts with a scenario or series of problems that are related to ‘real-world’ professional issues rather than academic subjects. PBL has been used in medicine, architecture, sciences, engineering and agriculture.

***Project-centred learning***Whereas in problem-based learning the overall goals and the problems are set by the teachers, project-based learning requires students to set their own learning objectives, decide on their own learning strategies and, in some instances, propose what they want to be assessed on. Undergraduate honours dissertations, or inter-disciplinary student projects are examples of this.

***Experiential learning***

The starting point in this approach is a real or concrete experience which the student is a part of, actively explores, and notes what is happening. The experience is then mulled over in the phase of critical reflection, followed by a period of drawing generalisations and theorising about what the experience meant.

***Individualised learning***

The main thrust of individualised learning is that it emphasises the work of one student rather than a group or a class. It usually allows the students to progress at her/his own pace within certain time constraints, and to test their own progress when they feel ready for it.

For example the Mathematics Level 1 course provides students with [online tests](http://www.gla.ac.uk/media/media_99541_en.doc) which highlight areas for improvement. These tests can be sat as many times as students would like and are supported by drop-in sessions.

1. When engaging students in co-creation of the curriculum, please be mindful of their time. They should have an opportunity to contribute to and comment on the design of your provision from the outset, but they should not be given tasks and responsibilities that are on par with staff contribution to the design. [↑](#footnote-ref-2)