Developing Learning Outcomes

Linking Outcomes to Assessment

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How to Develop Outcomes and Relate them to Assessment

1. Implement the given Faculty of Medicine Dentistry and Health Sciences directive to practice Outcome Based Education (OBE).

2. Use the defined elements of OBE to determine teaching, learning, and assessment practices in The Faculty of Medicine and Dentistry.

3. Write clear Learning Outcomes that define the specific competencies to be achieved in terms of skills, knowledge, attitudes and values.

4. Select or design assessment materials that are directly linked to Learning Outcomes.

5. Develop a clearly defined framework within which a learner can organize his or her efforts to complete the learning tasks.

6. Derive instructional material and content from the defined OBE framework.

7. Define the special conditions that apply to the actual activity that the learner will perform or demonstrate.

8. Specify the degree of accuracy or proficiency (standard or scale) that the learner must meet.

Defining Outcome Based Education (OBE)

OBE is an approach to education that shifts emphasis from what the teacher will do to what the student will do. It emphasizes the student learning by:

- clear and explicit identification of what a learner is expected to know, comprehend, or be able to do
- assessment that transparently and defensibly aligns with the outcomes
- teaching and learning activities that elicit the specified outcomes
- assessment tasks that are detailed and marked consistently using explicit criteria.
How is OBE implemented at UWA?

At its meeting on 4 April, 2001, the Academic Council resolved (R29/01) to endorse the introduction of Outcomes Based Education throughout the University of Western Australia in the 2004 academic year.

There are three ways in which OBE is currently being implemented at UWA:

1. **A comprehensive top-down approach:**
The outcomes for the course are clearly defined from the point of view of what is expected from its graduates. These outcomes consist of those that are discipline-specific and those that are generic to many courses or the university as a whole. From those principles and outcomes the curriculum of the course is constructed, the subdivision of the structure into units is made, and the outcomes specific to each of the units are derived.

2. **A comprehensive unit approach:**
The outcomes for a single unit are clearly defined within a “clean-slate” exercise. From those principles and outcomes the curriculum of the unit is constructed, and the criteria used in assessment are explicated.

3. **Re-focusing a unit:**
The existing objectives of a unit, or if there are none, the existing elements of the content, are rewritten in outcomes format, such that it becomes clear to the students what they are expected to understand and be able to do.

**Applying Outcome Based Education in the Faculty of Medicine Dentistry and Health Sciences**

The Faculty is applying the **top-down** approach. The Graduate Outcomes, Year Outcomes, and Unit Level Outcomes for Medicine, Dentistry and Health Science are being clearly identified in consultation with staff and students. The learning experiences and assessment processes used to collect evidence of achievement of the intended outcomes will be documented through the use of curriculum blueprints. Units and courses will be encouraged and supported to develop some criterion referenced formative and summative assessments and blueprint these against the intended student Learning Outcomes.

**What is a Learning Outcome?**

A Learning Outcome quantifies and qualifies the level of knowledge, or skill, to be attained. A standard level of performance is defined by the specific behaviour (knowledge or skill), the conditions under which the behaviour is to be observed, and the criteria by which the behaviour will be judged.

*For example:* Health Care Systems.

Discuss the Health Care systems within Australia and interpret their implications for the management of health.

**Hint:** Well-written Learning Outcomes include qualifiers to define the conditions, standards and terms under which Outcomes are met.
Graduate Outcomes for the UWA Medical Curriculum

The UWA medical course aims to produce doctors who:

- Understand the meaning and application of the social determinants of health and their implications for the health and health care needs of individuals, families and communities.
- Have sufficient knowledge and understanding of human structure and function, and behaviour to extend this understanding to the management of health and disease.
- Have the appropriate skills and attitudes to provide responsible clinical care within their professional limitations.
- Can demonstrate capacity for continuing self-education and further learning in their chosen field of medicine.
- Apply ethical standards of behaviour and knowledge of legal responsibilities to professional practice.
- Can apply understanding of population health issues to the health needs of individuals, families and communities.
- Have the ability and motivation to contribute to the advancement of medical and scientific knowledge.
- Have sufficient knowledge of the health care system to understand its impact upon the delivery of sustainable health care services.

Learning Outcomes for the UWA Medical Graduate

Learning Outcomes for the medical course are organised around four themes: Scientific Basis of Medicine (ScBM); Doctor and Patient (DP); Doctor, Health and Society (DHS); and, Personal and Professional Development (PPD). These themes describe important professional characteristics and skills that students will acquire during the course, and employ after course completion:
The Four Medical Themes

1. Scientific Basis of Medicine (ScBM)
   1. Apply the scientific/evidenced based approach to medicine and practice.
   2. Demonstrate in depth knowledge of normal human structure, function and behaviour.
   3. Evaluate and discuss Disordered Structure, Function and Behaviour of the human in response to internal and external factors.
   4. Apply knowledge of the pathological and clinical features of disease.
   5. Apply knowledge of therapies to health, illness, and disease.

2. Doctor and Patient (DP)
   6. Provide effective and safe patient assessment and management.
   7. Perform and practice practical procedures effectively and safely.
   8. Use effective communication skills and styles.
   9. Apply and evaluate health maintenance, promotion and disease prevention approaches to clinical practice.

3. Doctor, Health and Society (DHS)
   10. Apply knowledge of the organisation of the health care systems delivery in Australia.
   11. Apply a population perspective to health and health care in the community.
   12. Demonstrate a working knowledge of the socio-cultural context of health care of Aboriginal and Torres Strait Islander peoples and an ability to plan and provide comprehensive, multidisciplinary culturally secure care.
   13. Demonstrate an in depth knowledge of the effect of a multicultural society on health.

4. Personal and Professional Development (PPD)
   15. Apply principles of self care.
   17. Apply ethical behaviour to professional practice.
   18. Know own legal and professional responsibilities.
Focus of Themes in Teaching Blocks

<table>
<thead>
<tr>
<th>Theme</th>
<th>Teaching Block</th>
<th>Foundations and Normal Systems (FNS)</th>
<th>Foundations of Clinical Practice (FCP)</th>
<th>Integrated Paraclinical Sciences (IPS)</th>
<th>Clinical Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Basis of Medicine</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>➕</td>
<td>✔</td>
</tr>
<tr>
<td>Doctor, Health and Society</td>
<td></td>
<td></td>
<td>✔</td>
<td>➕</td>
<td>✔</td>
</tr>
<tr>
<td>Doctor and the Patient</td>
<td></td>
<td></td>
<td>✔</td>
<td>➕</td>
<td>✔</td>
</tr>
<tr>
<td>Personal and Professional Development</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>➕</td>
<td>✔</td>
</tr>
</tbody>
</table>

Writing Learning Outcomes to Match Themes

The following example from Obstetrics and Gynaecology (Year 5) relates to a clinical attachment where the emphasis is primarily on diagnosis and management. The Outcomes are linked to the four themes and provide greater detail about the learning expected to occur in a particular teaching session during the clinical attachment. The number of Learning Outcomes will vary for each teaching session:

| SCIENTIFIC BASIS OF MEDICINE | • Explain how to manage a normal pregnancy. (K)  
|                              | • Describe the routine management of minor complications of pregnancy (e.g. haemorrhoids, varicose veins, nausea, hyperemesis. (K)  
|                              | … etc |
| DOCTOR AND PATIENT           | • Perform a normal delivery under supervision (S).  
|                              | • Give a patient advice on exercise, alcohol, smoking and/or work during pregnancy (S)  
|                              | … etc |
| DOCTOR, HEALTH AND SOCIETY   | • Investigate the causes of perinatal morbidity and mortality through examination of current perinatal statistics for WA and identify (or evaluate) options to minimise this. (K, S)  
|                              | • Examine societal expectations and issues surrounding fertility and infertility. (K, A)  
|                              | … etc |
| PERSONAL AND PROFESSIONAL DEVELOPMENT | • Use medical records objectively and concisely for documentation of routine care (antenatal/gynaecological outpatients, partograms, observation charts, impatient records). (S, A)  
|                              | … etc |

A minimum provision is to clearly state the knowledge and skill/s that are expected of students as a result of the learning experiences.
Learning Outcomes for the UWA Dental Graduate

1. Integrated Science of Medicine and Dentistry
   1.1 Demonstrate knowledge of aspects of normal human structure and function.
   1.2 Evaluate and discuss disorders of human structure and function and their effects on health.
   1.3 Identify and interpret the implications of systemic medical conditions to the management of oral health.
   1.4 Formulate diagnosis of systemic medical conditions that present with oral symptoms and initiate appropriate management.
   1.5 Interpret pathological and clinical features of disease and apply to dental practice.
   1.6 Demonstrate and apply critical thinking to practice problems.
   1.7 Apply an evidence-based approach to dental practice.
   1.8 Apply and evaluate research and new information to dental practice.

2. Fundamentals of Clinical Dentistry
   2.1 Apply appropriate diagnostic processes.
   2.2 Identify the oral health care needs of patients.
   2.3 Apply and evaluate strategies for oral disease prevention, health maintenance and health promotion for individuals and the community.
   2.4 Provide effective and appropriate clinical management of patients.
   2.5 Identify the social and behavioural nature of individuals and evaluate the associated management implications.

3. Clinical Dental Practice
   3.1 Demonstrate the knowledge and skills of specialised areas of dentistry at a level that is appropriate for a general dentist.
   3.2 Recognise complex situations and appropriately manage such situations in liaison with specialist health practitioners.
   3.3 Evaluate and apply the current trends in the management of oral disease.
   3.4 Recognize and interpret the health care systems in Australia and overseas and where appropriate apply this to dental practice.

4. Personal and Professional Development
   4.1 Use effective communication skills.
   4.2 Demonstrate a strong commitment to continuing education in order to maintain and further develop skills and knowledge.
   4.3 Appraise and apply the legal, ethical and professional responsibilities required of a practising dentist.
   4.4 Identify one’s own intellectual and physical limitations and apply this awareness to the practice of dentistry.
   4.5 Identify the impact and implications of a multicultural society on the patterns of oral health care.
   4.6 Demonstrate an awareness of the issues regarding indigenous oral health.
Learning Outcomes for the UWA Health Sciences Graduate

Please note that the year level and graduate outcomes are currently under review.

1. Scientific and Evidence Bases of Health (SBH)
   1. Integrate scientific knowledge and skills to the management of health
   2. Develop, implement, and critically review research relevant to health science

2. Health in the Community (HC)
   3. Describe and compare the organisation and delivery of Australian and global health systems, critically review and evaluate policies in resource allocation and health care; and develop and implement programs in the management of health
   4. Analyse population health needs and promote healthy behaviours and environments through actions with individuals, communities and society and discuss equity from a public health perspective
   5. Design culturally appropriate health strategies
   6. Demonstrate a working knowledge of the socio-cultural context of the health of Aboriginal and Torres Strait Islander people and the ability to plan, deliver and evaluate effective strategies to promote and improve health

3. Personal Development and Professional Practice (PDPP)
   7. Know and apply ethical and professional responsibilities
   8. Use effective communication skills
   9. Apply principles of life long learning
   10. Apply principles of self care
Learning Outcomes for the UWA Podiatry Graduate

1. Integrated Science of Medicine and Podiatry (ISMP)
   1. Apply the scientific/evidence based approach to podiatric practice
   2. Apply an in depth knowledge of relevant normal human structure, function and behaviour
   3. Evaluate and apply knowledge of abnormal human structure, function and behaviour and their effects on general and podiatric health
   4. Apply knowledge of pathological and clinical features of diseases relevant to podiatry

2. Clinical Podiatric Practice (CPP)
   5. Provide effective and safe patient assessment and management
   6. Perform practical procedures effectively and safely
   7. Use effective communication skills
   8. Apply and evaluate strategies for health maintenance, promotion and disease prevention with patients and colleagues

3. Podiatric Health in the Community (PHC)
   9. Apply knowledge of the organisation and delivery of the care system in Australia
   10. Demonstrate a working knowledge of the socio-cultural context of health care of Aboriginal and Torres Strait Islander peoples
   11. Demonstrate knowledge of the effects of a multicultural society on health care

4. Personal and Professional Development
   12. Apply the principles of life-long learning and continuing education
   13. Apply principles of self care
   14. Engage in career development pathways
   15. Appraise and apply the ethical and professional responsibilities required of a podiatrist
   16. Apply legal and professional responsibilities
   17. Share acquired knowledge and skills with colleagues, members of the health team and the community
Applying Outcome Based Education to Course Units

While the themes present the scientific underpinnings of the medical course and clearly specify various graduate attributes students would be required to attain, it is important to indicate how the themes will be identified, evaluated and assessed. Each Outcome statement should relate to one or more of the course themes, as shown in the matrix below.

### EXAMPLE: Learning Outcomes for: Year 5 Obstetrics and Gynaecology

<table>
<thead>
<tr>
<th>Unit Outcomes At the end of this unit, students should be able to:</th>
<th>Specific Unit Learning Outcomes</th>
<th>Year Level Outcomes</th>
<th>Theme and Graduate Outcomes</th>
<th>Teaching &amp; Learning Experiences</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| Integrate knowledge of anatomy, physiology, biochemistry and endocrinology to reproductive health and the management of specific women’s health, illness and disease presentations | - Summarise female sexual maturation  
- Summarise normal sexual function  
- Apply knowledge of physiology, biochemistry, histology of the menstrual cycle…...  
- 2.5.1 Integrate knowledge of normal human structure and function with health and illness presentations | Year Level Outcomes | Scientific Basis of Medicine  
2. Demonstrate an in depth knowledge of normal human structure, function and behaviour | PBL sessions, CBL sessions  
Fixed Resource Sessions  
Clinical Skill Workshops  
Revision from previous years. | Presentation at PBL & CBL sessions.  
Written Examination (end of year).  
Clinical Examination (end of year) |
| Discuss and evaluate transitions and outcomes surrounding pregnancy and birth throughout the woman’s reproductive life. | - Demonstrate ability to conduct a consultation of a woman using a problem solving approach:  
- elicit a history  
- perform a complete and or organ specific systematic physical examination  
- formulate a differential diagnosis…...  
- 6.5.1 Provide effective and safe patient assessment and management with supervision | Doctor and Patient  
6. Provide effective and safe patient assessment and management | PBL and CBL sessions  
Fixed Resource Sessions  
Ward experience. | Presentation at PBL & CBL sessions.  
Case Presentation.  
Written Examination |
| Apply health promotion, maintenance, disease prevention approaches to women’s health | - Explain concepts surrounding reproductive health care for well women  
- Provide appropriate advice for a pregnant woman regarding exercise, alcohol, smoking, work and, medications  
- 9.5 Apply health promotion, maintenance and disease prevention behaviours with patients and colleagues  
- 11.5 Apply a population perspective to health and health care | Doctor, Health and Society  
11. Apply a population perspective to health and health care in the community | PBL & CBL sessions  
Fixed Resource Sessions  
Clinical Team Attachments | Presentation at PBL & CBL sessions.  
Case Presentation.  
Written Examination (end of year)  
Clinical Examination (end of year) |
Steps in Writing Learning Outcomes

1. **Review existing course aims**, literature, course documents and reports to benchmark appropriate standards required for writing the Learning Outcomes.

2. **Identify professional attributes of ideal graduating students** (refer to professional bodies, such as Australian Medical Council and Australian Dental Council). Use the Graduate Outcomes (pages 4, 7 & 8) to decide appropriate Learning Outcomes for the course. Outcomes for each Year level in Medicine are available on the Faculty Website. Individual Unit Outcomes are derived from both Course and Year Level Outcomes.

3. **Determine Learning Outcomes** from desirable terminal practice-based knowledge, skills and behaviours implicit in graduate attributes.

4. **Assign priority to the four course themes for Outcomes** but include all themes.

5. **Assign priority to learning levels** (knowledge, skills, attitudes). The knowledge domain for Medicine and Dentistry should be complete, and comprehensive. This means that the link between knowledge, content and skills need to be carefully detailed.

6. **Agree on a basic educational philosophy** which captures preferred teaching methodologies and assessment approaches.

7. **Establish ways of measuring attainment** of Learning Outcomes through the selection of appropriate assessment tools.

8. **Review** the appropriateness of Outcomes through correlating what is taught with what is assessed.

**Design Backward**

- Intended Learning Outcomes of the Lesson
- Intended Learning Outcomes of the Unit
- Course Outcomes at the Course Year level
- Medical Graduate Outcomes Statement
- Mission Statement of the Faculty of Medicine Dentistry & Health Sciences

**Deliver Forward**

Hint: Well-written Learning Outcomes are clearly defined, valid, observable, measurable and specify a standard or scale of performance.
Writing Learning Outcomes

Learning Outcomes should be written in clear language in the present tense, identify important learning requirements, and must be assessable. There must be agreement on pre-defined criteria or conditions to ensure that learners have achieved the appropriate standard in each of the Outcomes. Expected standards of performance must be clearly specified in the wording of each Outcome.

Learning Outcomes must define assessment practice, which in turn should guide the approaches to teaching materials, activities, and instructional methods.

Hint: Remember to directly link the Teaching and Learning activities to the Learning Outcomes being assessed.
Grouping Outcomes by Domain Levels

The three groups of domains identified by educational psychologist, Benjamin Bloom, are commonly used to group objectives and learning outcomes. These are:

- **Cognitive domain** – encompasses intellectual or thinking skills
- **Psychomotor domain** – encompasses physical skills or actions
- **Affective domain** – encompasses attitudes and values

Within each Domain there are several levels or **scales** you may wish to specify in your Outcomes writing. This will depend upon the extent of detail that is required in the curriculum and what you know about the learning style and readiness of the students.

### Example

- Make decisions based on diagnosis, investigation and management (Levels 3-5 on the Knowledge scale)
- Describe the complications of hypertension (Level 2 on the Knowledge scale)

**Hint:** Include Knowledge, Skills and Attitudes Outcomes

**Hint:** A variety of cognitive levels should be represented in the Outcomes.

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Each domain has a list of suitable verbs for describing that level or scale when writing Learning Outcomes.

Sources:
Use the following scales to write your Learning Outcomes:

Knowledge is the least complex level of thinking, with evaluation being the most complex.

<table>
<thead>
<tr>
<th>TAXONOMY OF THE COGNITIVE DOMAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>1.00 Knowledge</strong></td>
</tr>
</tbody>
</table>
| 1.00 | 1.10 of Specifics  
1.11 of terminology  
1.12 of specific facts  
1.20 of Ways and Means of dealing with Specifics  
1.21 of conventions  
1.22 of trends and sequences  
1.23 of classifications and categories  
1.30 of the Universals and Abstractions in a Field  
1.31 of principles and generalizations  
1.32 of theories and structures |
| **2.00 Comprehension** | associate, conclude, differentiate, discuss, explain, estimate, extend, extrapolate, generalise, give examples, regroup, infer, interpret, locate, paraphrase, predict, rearrange, reorder, restate, rewrite, show, summarize, transform, translate |
| 2.00 | 2.10 Translation  
2.20 Interpretation  
2.30 Extrapolation |
| **3.00 Application** | apply, assemble, calculate, compute, demonstrate, determine, discover, generalize, illustrate, manipulate, modify, operate, organize, perform, practise, prepare, structure, sketch, solve, transfer, use |
| **4.00 Analysis** | analyse, break down, compare, contrast, deduce, detect, diagram, discriminate, differentiate, distinguish, experiment, infer, inspect, outline, point out, question, separate, sub-divide, test |
| 4.00 | 4.10 of Elements  
4.20 of Relationships  
4.30 of Organizational Principles |
| **5.00 Synthesis** | combine, compile, create, design, derive, develop, devise, generate, integrate, modify, plan, produce, propose |
| 5.00 | 5.10 Production of a Unique Communication  
5.20 Production of a Plan, or Proposed Set of Operations  
5.30 Derivation of a Set of Abstract Relations |
| **6.00 Evaluation** | appraise, assess, compare, conclude, consider, criticize, contrast, evaluate, interpret, judge, justify, measure, rate, score, select, support, validate, value |
| 6.00 | 6.10 Judgements in Terms of Internal Evidence  
6.20 Judgements in Terms of External Criteria |


Note: some verbs may apply at several levels. For example, modify (comprehension → synthesis).
## COGNITIVE DOMAIN

### Know – Can students RECALL information?

<table>
<thead>
<tr>
<th>Who, What, Where, When, How</th>
<th>Which one</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much</td>
<td>Name</td>
</tr>
<tr>
<td>Describe</td>
<td>Label</td>
</tr>
<tr>
<td>Define</td>
<td>List</td>
</tr>
<tr>
<td>Memorise</td>
<td>Reproduce</td>
</tr>
<tr>
<td>Literal questions</td>
<td>Recall</td>
</tr>
</tbody>
</table>

### Comprehend – Can students EXPLAIN ideas?

<table>
<thead>
<tr>
<th>Explain</th>
<th>What are they saying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe in your own words</td>
<td>Explain what is happening</td>
</tr>
<tr>
<td>Inferential questions</td>
<td>Give an example</td>
</tr>
<tr>
<td>Summarise</td>
<td>State in 5 words</td>
</tr>
<tr>
<td>What would go better</td>
<td>Explain what is meant</td>
</tr>
<tr>
<td>Select the definition</td>
<td>What restriction would you add</td>
</tr>
<tr>
<td>Read the graph table</td>
<td>Translate</td>
</tr>
<tr>
<td>This represents</td>
<td>Outline</td>
</tr>
<tr>
<td>Condense this paragraph</td>
<td>Locate</td>
</tr>
<tr>
<td>What part doesn’t fit</td>
<td>Match</td>
</tr>
</tbody>
</table>

### Apply – Can students USE ideas?

<table>
<thead>
<tr>
<th>What is this used for?</th>
<th>How would you use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make a model</td>
<td>Tell what would happen</td>
</tr>
<tr>
<td>If…how</td>
<td>Demonstrate how</td>
</tr>
<tr>
<td>Construct how</td>
<td>Show how</td>
</tr>
<tr>
<td>How much would there be if…</td>
<td>Design a lesson</td>
</tr>
<tr>
<td>Choose the statements that don’t apply</td>
<td></td>
</tr>
</tbody>
</table>

### Analyse – Can students DETERMINE relationships?

<table>
<thead>
<tr>
<th>Whole into parts</th>
<th>Analyse, Research, Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group, Categorise, Compare and Contrast</td>
<td>What inconsistencies, fallacies</td>
</tr>
<tr>
<td>Arrange</td>
<td>What is the relationship</td>
</tr>
<tr>
<td>Chart</td>
<td>What is the function of</td>
</tr>
<tr>
<td>Diagram</td>
<td>What conclusions</td>
</tr>
<tr>
<td>Reason for…</td>
<td>What does the author believe</td>
</tr>
<tr>
<td>Investigate</td>
<td>Make a distinction</td>
</tr>
<tr>
<td>Cause for</td>
<td>What motive is there</td>
</tr>
<tr>
<td>Conclude</td>
<td>State the point of view</td>
</tr>
<tr>
<td>Separate</td>
<td>What relationship</td>
</tr>
<tr>
<td>Similar</td>
<td>Graph</td>
</tr>
<tr>
<td>Like</td>
<td>Differentiate</td>
</tr>
<tr>
<td>Dissect</td>
<td>Categorize</td>
</tr>
<tr>
<td>Distinguish fact from opinion</td>
<td>What persuasive technique</td>
</tr>
</tbody>
</table>
**Synthesize – Can students combine ideas and CREATE a new entity?**

- New ways of doing
- Consider the unexpected
- Hypothesize
- Compose
- Design
- Construct
- Build
- Solve the following
- Plan
- Link concepts in an unusual and flexible way
- What if
- Invent
- Take risks
- Pose an alternative
- Create
- Solve
- Blend
- How else would you
- Combine
- Imagine
- Predict
- Make
- Make a film
- Propose an alternative

**Evaluate – Can students make JUDGEMENTS and support them?**

- Evaluate quality, relevance, reliability, truth
- Argue critically
- Determine the accuracy and effectiveness
- Rate
- Grade
- Verify
- Dispute
- Criticise
- Find the errors
- Appraise
- Judge
- Editorialise
- Defend
- Rank by order of importance
- Defend
- Which is best
- Choose and explain why
- What fallacies, consistencies, inconsistencies appear
- Which is more important, better, moral, appropriate, inappropriate, useful, clearer, suits the purpose, achieves the goal, logical, valid

**Hint:**
Keep Outcomes simple, and unambiguous in order to convey clear intentions.
Checking the Quality of Outcomes

✓ Do they reflect appropriately all the intended Learning Outcomes and do they sit well with the present state of knowledge of the students?

✓ Are they observable and measurable, and is the desired exit behaviour clearly defined to a specified standard or set of conditions?

✓ Are they attainable by intended learners and in the time available?

✓ Do they reflect the course and curriculum aims?

Outcomes must:

• define specific outcomes or competencies to be achieved in terms of skills, content mastery, attitudes or values
• form the basis upon which to select or design instruction materials, content or techniques
• provide the basis for determining or assessing when the instruction purpose has been accomplished
• provide a framework within which learners can organize their efforts to complete the learning tasks

Well-written Learning Outcomes:

• Are carefully worded to include standards, conditions and terms which must be met.

  Criteria/standards: defined levels of accuracy, quality, quantity, time constraints

• Include special conditions that apply to the actual activity in the present tense that the learner will perform.

  Performance:
  The learner will [verb]...

• Specify the degree of accuracy or proficiency that the learner must meet.

  Conditions:
  Given “x” .... without “y”

Example: Elicit and interpret clinical symptoms and signs by history and examination and apply this information to plan management.
# Blueprinting – An Example

The following matrix ties Outcomes with themes and assessment, and categorises Learning Outcomes into Knowledge Attitudes and Skills.

<table>
<thead>
<tr>
<th>Unit Name</th>
<th>Year 5 Obstetrics &amp; Gynaecology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Co-Ordinator</td>
<td>Di Carmody</td>
</tr>
<tr>
<td>Unit Length:</td>
<td>Eight Week Block</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>#</th>
<th>Summative Assessment Type</th>
<th>Description and/or Format</th>
<th>Core/ Elective</th>
<th>Theme/s DP/DHS/ PPD/SBM</th>
<th>Knowledge Skills Attitude</th>
<th>Barrier Yes/No</th>
<th>Weighting %</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Continuous</td>
<td>CBL &amp; PBL Presentations</td>
<td>Core</td>
<td>SBM</td>
<td>K, S, A</td>
<td>No</td>
<td>10</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Summative</td>
<td>OSCE</td>
<td>Core</td>
<td>SBM DP</td>
<td>K, S, A</td>
<td>No</td>
<td>N/A</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<tr>
<td>3</td>
<td>Continuous</td>
<td>Ante &amp; Gynae Exam</td>
<td>Core</td>
<td>DP</td>
<td>K, S, A</td>
<td>Yes</td>
<td>20</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>Continuous</td>
<td>Reflective Case Studies</td>
<td>Core</td>
<td>PPD</td>
<td>K, S, A</td>
<td>No</td>
<td>5</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>Summative</td>
<td>CARF</td>
<td>Core</td>
<td>DP</td>
<td>S, A</td>
<td>No</td>
<td>5</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6</td>
<td>Summative</td>
<td>Final Written Exam</td>
<td>Core</td>
<td>SBM DP</td>
<td>K, A</td>
<td>Yes</td>
<td>60</td>
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<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key for course Outcomes which were addressed in the various assessment components

A **Outcome 1** Apply knowledge of anatomy, physiology, biochemistry and endocrinology to the female reproductive system.

B **Outcome 2** Discuss and evaluate transitions and outcomes surrounding pregnancy and birth throughout the woman’s reproductive life.

C **Outcome 3** Explore scientific knowledge surrounding the management of specific health problems for women.

D **Outcome 4** Commence development of effective clinical and interpersonal skills related to women’s health.

E **Outcome 5** Develop skills related to interactions with health care professionals and colleagues.

**Outcome 6** Explore related medico-legal and ethical issues.
State Outcomes that can be Assessed

Learning Outcomes must provide a useful basis for creating test questions, they must contain verbs that describe *observable, measurable, demonstrable* actions or skills, and *specific levels of thinking*, because these are things that can be tested.

<table>
<thead>
<tr>
<th>Avoid words like.....</th>
<th>Use words like.....</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know</td>
<td>List</td>
</tr>
<tr>
<td>Understand</td>
<td>Describe</td>
</tr>
<tr>
<td>Be familiar with</td>
<td>Evaluate</td>
</tr>
<tr>
<td>Appreciate</td>
<td>Identify</td>
</tr>
<tr>
<td>Be aware of</td>
<td>Design</td>
</tr>
<tr>
<td>Have a good grasp of</td>
<td>Explain</td>
</tr>
<tr>
<td>Have a knowledge of</td>
<td>Select</td>
</tr>
<tr>
<td>Realise the significance of</td>
<td>Distinguish</td>
</tr>
<tr>
<td>Believe</td>
<td>Construct</td>
</tr>
<tr>
<td>Be interested in</td>
<td>Solve</td>
</tr>
</tbody>
</table>

Miller’s (1990) Pyramid shows how the hierarchy of various learning levels can be matched to particular types of assessment.

Performance

- Performance in *vivo*
  - Ward assessment
  - Portfolio

Performance in *vivo*

Simulation

OSCEs

Application

MCQ, Essay, Oral

Clinical context based tests

Knowledge

Factual tests

EMQ MCQ, SAQ, Essay


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Choose assessment methods to suit your desired Learning Outcomes and course content:

- **Assessing knowledge and comprehension**
  
  Essays
  Report
  Short answer questions
  Reflective case summary
  Videotaped consultation
  
  Reflective journals/ portfolios
  Critical incident analysis
  Concept mapping
  Case based article
  Critical appraisal

- **Assessing critical thinking skills**
  
  Essay
  Report
  Critical incident analysis
  Assessing Peer feedback
  
  Critical evaluation of the literature
  Critique on an issue
  Reflective journal writing
  Seminar presentation

- **Assessing problem solving skills**
  
  Simulation
  Report
  Clinical assessment
  Essay Question
  Observed long case
  
  Problem Based Learning (PBL)
  Poster
  Simulated patient interviews
  Viva voce

- **Assessing performance of procedures and demonstrating techniques**
  
  Mastery performance tests
  Video skill assessment
  Assessment of competence in simulation
  Case History exercises
  Clinical tutor evaluation
  Observed long case
  Clinical tutor assessment
  
  OSCE
  Web-based skills assessment
  Ward rating
  Special clinical skills exam
  Laboratory reports
  Case presentation
  Case assessment

- **Assessing ability to reflect upon learning and integrate into professional practice**
  
  Reflective journals
  Simulations
  Case Study
  PBL
  Clinical tutor evaluation
  Videotaped consultation
  Case presentation
  
  Portfolio
  Critical incidents
  Project
  Log diary
  Clinical experience record
  Reflective case summary
  Clinical tutor rating
• **Assessing independent learning skills**

Learning contracts  
Peer assessment  
Critical appraisal  
Clinical experience record  
Portfolios  
Project  
Reflective case summary  
Case based article

• **Assessing collaborative learning skills**

Group projects where the group process and *group outcomes are assessed* (using criteria against which the group can assess itself and determine future, more effective ways of functioning)  
Peer tutoring

• **Assessing research skills**

Research assignment that is professionally relevant (and where students are assisted to develop the requisite skills)  
Develop a database on a particular area  
Writing an annotated bibliography  
Case based article  
Research Paper  
Literature review

**Hint:**
Prior to Unit commencement, provide students with a statement of the Learning Outcomes and indicate where the learning is to be covered in the nominated Unit curriculum.
## Glossary of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account</td>
<td>Account for, state reasons for, report on. Give an account, or narrate a series of events for transactions</td>
</tr>
<tr>
<td>Analyse</td>
<td>Identify components and the relationship between them; draw out and relate implications</td>
</tr>
<tr>
<td>Apply</td>
<td>Use, utilise, employ in a particular situation</td>
</tr>
<tr>
<td>Appreciate</td>
<td>Make a judgment about the value of</td>
</tr>
<tr>
<td>Assess</td>
<td>Make a judgment of value, quality, outcomes, results or size</td>
</tr>
<tr>
<td>Calculate</td>
<td>Ascertain/determine from given facts, figures or information</td>
</tr>
<tr>
<td>Clarify</td>
<td>Make clear or plain</td>
</tr>
<tr>
<td>Classify</td>
<td>Arrange or include in classes/categories</td>
</tr>
<tr>
<td>Compare</td>
<td>Show how things are similar or different</td>
</tr>
<tr>
<td>Construct</td>
<td>Make, build, put together items or arguments</td>
</tr>
<tr>
<td>Contrast</td>
<td>Show how things are different or opposite</td>
</tr>
<tr>
<td>Critically</td>
<td>Add a degree or level of accuracy, depth, knowledge and logic, analyse/evaluate</td>
</tr>
<tr>
<td>Deduce</td>
<td>Draw conclusions</td>
</tr>
<tr>
<td>Define</td>
<td>State meaning and identify essential qualities</td>
</tr>
<tr>
<td>Demonstrate</td>
<td>Show by example</td>
</tr>
<tr>
<td>Describe</td>
<td>Provide characteristics and features</td>
</tr>
<tr>
<td>Discuss</td>
<td>Identify issues and provide points for and/or against</td>
</tr>
<tr>
<td>Distinguish</td>
<td>Indicate as being distinct or different from; note differences between</td>
</tr>
<tr>
<td>Evaluate</td>
<td>Make a judgment based on criteria; determine the value of</td>
</tr>
<tr>
<td>Examine</td>
<td>Inquire into</td>
</tr>
<tr>
<td>Explain</td>
<td>Choose relevant and/or appropriate details</td>
</tr>
<tr>
<td>Extrapolate</td>
<td>Infer from what is known</td>
</tr>
<tr>
<td>Hypothesize</td>
<td>Explain the cause from which a plausible mechanism can be advanced</td>
</tr>
<tr>
<td>Identify</td>
<td>Recognise and name</td>
</tr>
<tr>
<td>Interpret</td>
<td>Draw meaning from</td>
</tr>
<tr>
<td>Investigate</td>
<td>Plan, inquire into and draw conclusions about</td>
</tr>
<tr>
<td>Justify</td>
<td>Support an argument or conclusion</td>
</tr>
<tr>
<td>List</td>
<td>Ordering of related items</td>
</tr>
<tr>
<td>Outline</td>
<td>Sketch in general terms, indicate the main feature of</td>
</tr>
<tr>
<td>Predict</td>
<td>Suggest what may happen based on available information</td>
</tr>
<tr>
<td>Propose</td>
<td>Put forward (a point of view, idea, argument) for consideration or action</td>
</tr>
<tr>
<td>Recall</td>
<td>Present remembered ideas, facts or experiences</td>
</tr>
<tr>
<td>Recommend</td>
<td>Provide reasons in favour of</td>
</tr>
<tr>
<td>Recount</td>
<td>Retell a series of events</td>
</tr>
<tr>
<td>Summarise</td>
<td>Express concisely the relevant details</td>
</tr>
<tr>
<td>Synthesize</td>
<td>Put together various elements to make a unique composite</td>
</tr>
</tbody>
</table>
# Blueprinting – A Sample

## Unit Name

## Unit Co-Ordinator

## Unit Length:

<table>
<thead>
<tr>
<th>#</th>
<th>Summative Assessment Type</th>
<th>Description and/or Format</th>
<th>Core/Elective</th>
<th>Theme/s DP/DHS/PPD/SBM</th>
<th>Knowledge Skills</th>
<th>Barrier Yes/No</th>
<th>Weighting %</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
</table>

**Key for course Outcomes which were addressed in the various assessment components**

A  
B  
C  
D  
E  
F  
G  
I  

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