



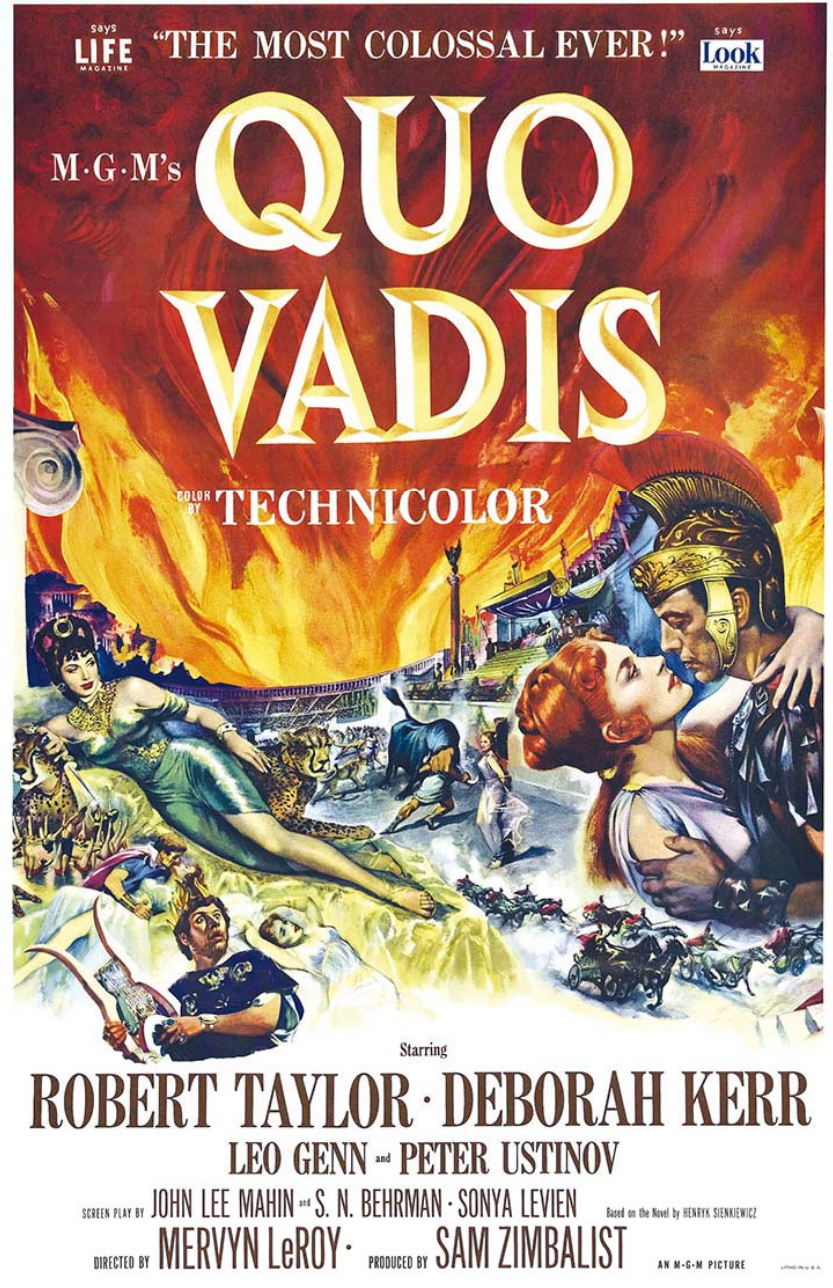
HEA STEM Annual Learning and Teaching Conference 2014:
Enhancing the STEM Student Journey
Edinburgh 30 April-1 May

Providing Biosciences undergraduates
with a good learning experience whilst
enhancing their employability:

The Competencies Development Scheme at
Cardiff School of Biosciences

Beatrix Fahnert





Graduate Employability



.....achievement of:

the skills, understandings and personal attributes that make an individual more likely to secure employment and be successful in their chosen occupations to the benefit of themselves, the workforce, the community and the economy

Employability Skills



- team working
- problem solving
- self-management
- knowledge of the business
- literacy and numeracy relevant to the post
- ICT knowledge
- good interpersonal and communication skills
- ability to use own initiative and to follow instructions
- leadership skills

Well rounded highly employable graduates

Competencies Development Scheme since 2010/11

subject and transferable skills at acceptable competence level developed with appropriate progression

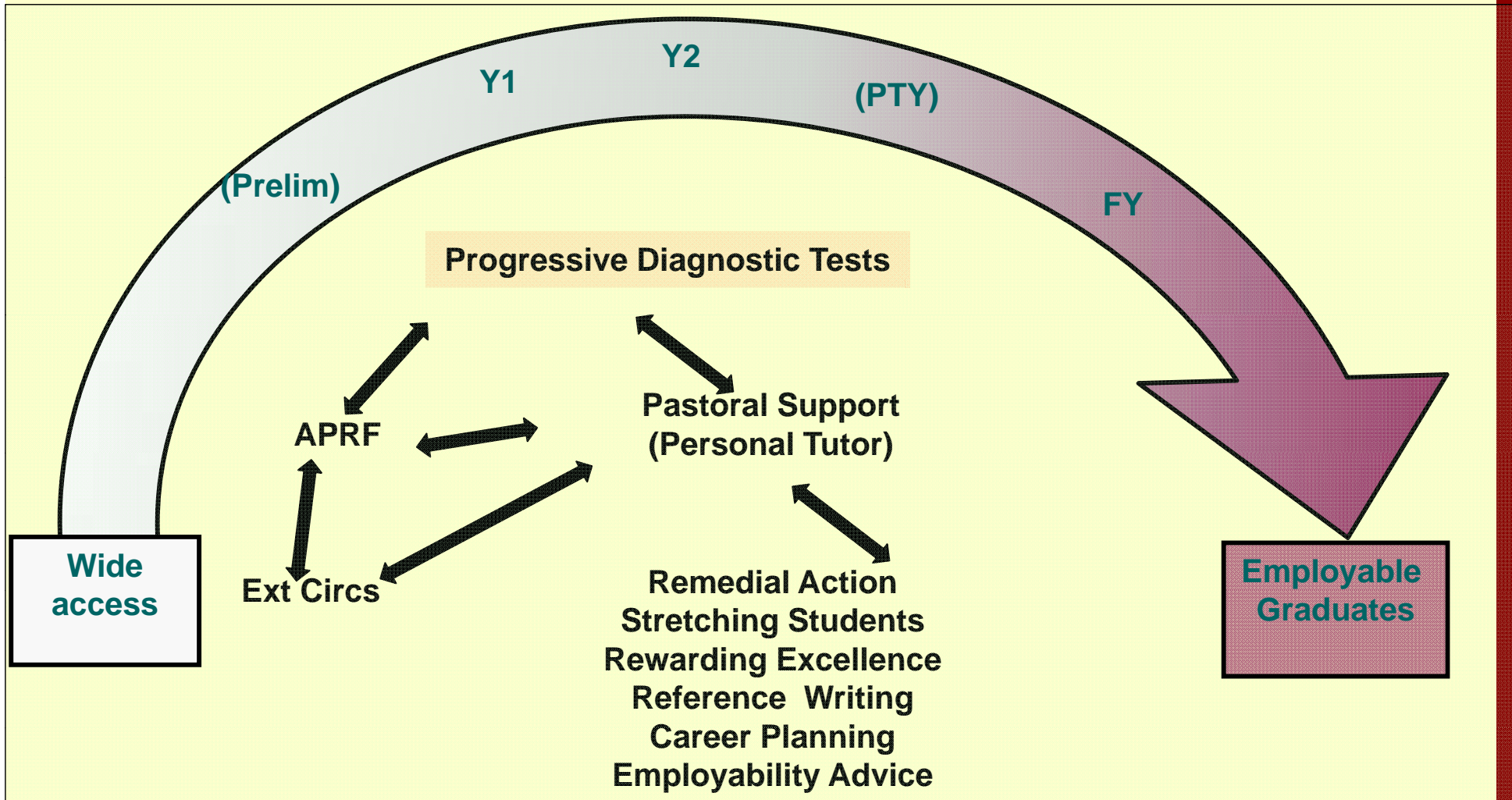
structured system of learning and teaching activities assessing the level of achievement

linked to bespoke feedback, pastoral and academic advice, feeding into career and employability advice

PDP in disguise starting reflective practice leading into CPD
Record of Competencies Training

Competencies Development Scheme

Meeting individual student's needs in a uniform, transparent and structured way.

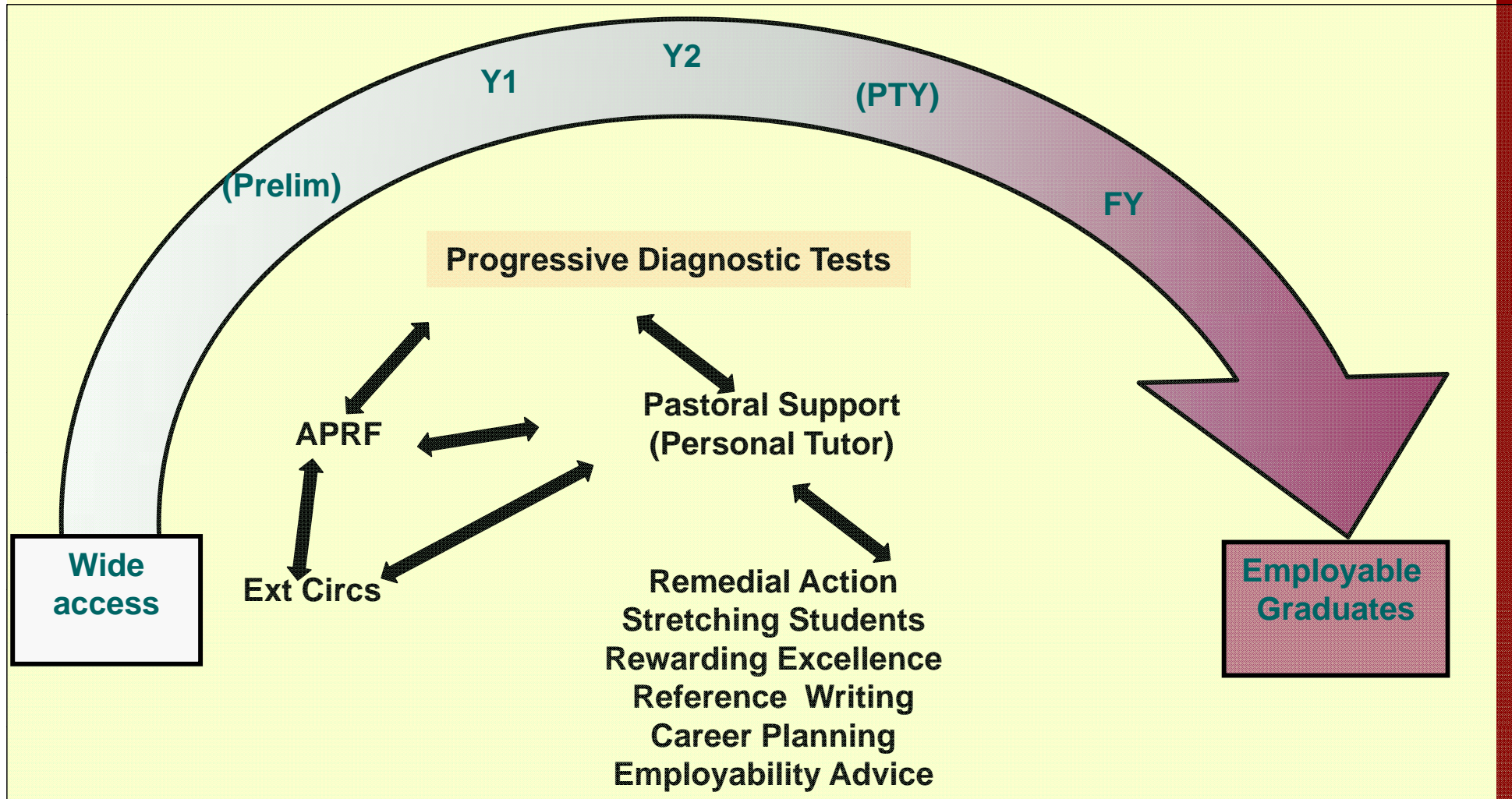


Benchmarks for students to monitor progress/ plan remedial action supported by tutors.
Improved feedback encourages reflection. Database for records and as tool.



Competencies Development Scheme

Meeting individual student's needs in a uniform, transparent and structured way.



Benchmarks for students to monitor progress/ plan remedial action supported by tutors.
Improved feedback encourages reflection. Database for records and as tool.



Competencies Development Scheme



Level Four	Level Five	Level Six
<ul style="list-style-type: none">▪ Numeracy▪ Literacy▪ Referencing▪ Summary writing▪ Group work▪ Peer-assessment▪ Reflection▪ Gaining a job	<ul style="list-style-type: none">• Lab numeracy• Health and safety▪ Abstract writing▪ Integrating info▪ Constructing logical arguments▪ Assessing data critically▪ Group work▪ Peer-assessment▪ Reflection▪ Employability	<ul style="list-style-type: none">▪ Self-assessment/management▪ Reflection▪ Risk Assessment



Competencies Development Scheme

components embedded in core modules

mostly run outside modules

supported by Personal Tutor, Final Year Research Project Supervisor

requires and encourages a high level of student engagement

logbook (aims, overview, explanations, timelines, support)

diagnostic test as snapshot of development vs. exam



Competencies Development Scheme



Level Six:

proactively seeking information and support

preparing transition of PDP into CPD

identifying any remaining training needs

initially aided by proforma

student/ supervisor rapport

SKILL to develop	How I can improve this skill	Where I can get help

Skill Gap Analysis
Your assessment of your level of competence in the skill
1 = minimal 2 = low 3 = moderate 4 = high 5 = fully proficient

1. ACADEMIC SKILLS	2. SELF-MANAGEMENT SKILLS	3. COMMUNICATION SKILLS	4. INTERPERSONAL SKILLS
Literary research Able to research appropriate periodicals, websites, books and other references to draw together the required information. 5 4 3 2 1	Reflection on learning Able to stand back, review an activity or task, capture its essence and systematically plan the next steps. 5 4 3 2 1	Written materials Able to construct essays and reports, using the most appropriate style for the purpose. 5 4 3 2 1	Groupwork/Teamwork Work in co-operation with others, taking responsibility for share of group working to help the group achieve its goal. 5 4 3 2 1
Synthesis of data Having located relevant information from a variety of sources, to bring it together and present appropriately for the task set. 5 4 3 2 1	Self assessment/Assessment Able to evaluate own strengths, values, weaknesses, progress and future learning objectives. 5 4 3 2 1	Oral/Visual presentations Able to distil information, present ideas to an audience using visual aids and answer questions to defend a case. 5 4 3 2 1	Understanding/Tolerance of others Recognise and accommodate the fact that others have different needs, feelings and/or behaviour. 5 4 3 2 1
Critical Thinking Consider issues from a range of perspectives and draw upon appropriate concepts and values in arriving at a critical judgement. 5 4 3 2 1	Action planning/Decision making Able to plan, set and meet own objectives and make decisions starting from a variety of possible options. 5 4 3 2 1	Active listening Listen to other people's arguments and give and receive feedback. 5 4 3 2 1	Negotiation Ability to know what is wanted, to negotiate assertively (not aggressively) and to come to a mutually agreed outcome. 5 4 3 2 1
Active learning Willing to take an active role in learning and recognise personal responsibility for own learning. 5 4 3 2 1	Time management/Task discipline Able to prioritise tasks, manage and achieve results on time and within any imposed constraints. 5 4 3 2 1	Study skills To be able to take and organise lecture notes and understand notes taken. Read and write for a purpose. Meet deadlines. 5 4 3 2 1	Peer assessment Able to give constructive feedback to student peers and to receive/accept similar from them. 5 4 3 2 1
Problem solving Understand and clarify the nature of a problem before taking appropriate action and develop effective strategies for any problems that arise. 5 4 3 2 1	Independence Able to work without supervision. 5 4 3 2 1	Resilience Able to manipulate numerical data in any context in which you would be expected to participate. 5 4 3 2 1	Leadership Able to manage, guide or influence a group to realise its objectives and the contribution of all participants. 5 4 3 2 1
Project management Able to plan, monitor and evaluate to ensure projects completed in time and within any imposed specifications. 5 4 3 2 1	Initiative/Proactive approach Able to initiate activities and follow interests without supervision or prompting from others. 5 4 3 2 1	Information skills Able to seek, store, retrieve, synthesise, use and present information in ways appropriate to the task. 5 4 3 2 1	Manage change/Adaptability Able to make / manage change and comfortably face changing circumstances and new challenges. 5 4 3 2 1
Creativity/Innovation Able to think creatively and inventively, to develop original approaches in defining and solving problems. 5 4 3 2 1	Budgeting Able to budget/finance effectively. 5 4 3 2 1	IT skills Able to use computer applications to the level required and appropriate to the problem in hand. 5 4 3 2 1	Employability Rate this based on the development of all the other skills. 5 4 3 2 1

Obviously not everyone's skills set is equally developed. We all have strengths and weaknesses. However, it is important to regularly reflect and audit. So we can make sure we maintain our strengths and improve on weaknesses. What skills are critical also changes over time. The above are important ones for undergraduate to develop. Thus at time of graduation everyone has a well developed broad set of skills. A good target would be reaching at least 4 everywhere. If you are not there yet, use the remaining time for development with support from your project supervisor and your personal tutor.

Use the next page for an action plan:

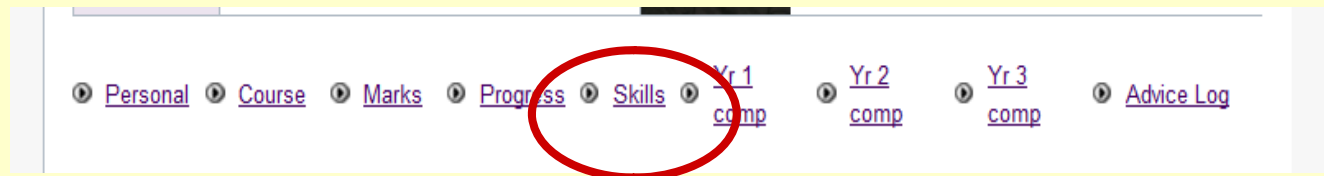
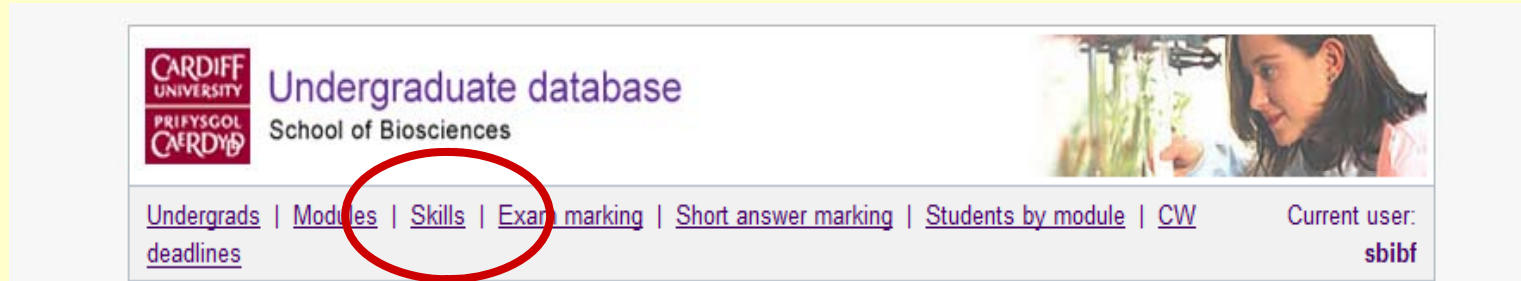
This form is based on PDP Form 3, which is a modification from one developed by Maureen Dowden and Paul Walker at UCL.



Searchable Skills Database



Staff




transferable and practical skills
enhances development planning
informs module choices before [pre-]enrolment
informs reference writing

Searchable Skills Database



Students

 **Undergraduate**
School of Biosciences

[Timetable search](#) | [Module skills](#) Current user:

Module Skills

Select a skill to list associated modules:

Basic scientific calculations (numeracy)

Select a module to list associated skills:

BI0001 : CELLS AND THE CHEMISTRY OF LIFE

- ▶ [PRELIM SKILLS MATRIX](#)
- ▶ [YEAR 1 SKILLS MATRIX](#)
- ▶ [YEAR 2 SKILLS MATRIX](#)
- ▶ [YEAR 3 SKILLS MATRIX](#)



Record Keeping



Staff

Undergraduate database
School of Biosciences

Undergraduate | Modules | Skills | Exam marking | Research marking | Student by module | CW deadlines | Current user: abbf

Year 1 competencies for:

Autumn research seminar abstract main strengths and weaknesses:

Structure and Organisation

Fluency and Clarity

Grammar and spelling

Use of scientific language

Content comprehension

Competency level

Maths diagnostic test:

Literacy test:

Spring research seminar abstract main strengths and weaknesses:

Structure and Organisation

Fluency and Clarity

Grammar and spelling

Use of scientific language

Content comprehension

Competency level

JPRF Autumn:

JPRF Spring:

Compulsory Attendance (Yor N)

Autumn Tutorial			Spring Tutorial			Health & Safety Instruction
Tutorial 1	Tutorial 2	Tutorial 3	Tutorial 1	Tutorial 2	Tutorial 3	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Evidenced engagement with producing the ePortfolio (Yor N)

Tutor Notes (N.B. These entries are visible to personal tutors only). Confidentiality Information
Personal Tutors are encouraged to use this area for logging their notes of a non-confidential nature.

Undergraduate database
School of Biosciences

Undergraduate | Modules | Skills | Exam marking | Research marking | Student by module | CW deadlines | Current user: abbf

Year 2 competencies for:

Integrating Information diagnostic test:

Coverage and Balance

Accuracy

Logical Structure

Clarity and Succinctness

Grammar and Spelling

Competency level

Autumn research seminar abstract main strengths and weaknesses:

Coverage and Balance

Accuracy

Logical Structure

Clarity and Succinctness

Content analysis and integration

Competency level

Spring research seminar abstract main strengths and weaknesses:

Coverage and Balance

Accuracy

Logical Structure

Clarity and Succinctness

Content analysis and integration

Competency level

JPRF Autumn:

JPRF Spring:

Key skills mark

Summer 1 Summer 2 Summer 3

Tutor meeting attendance (Yor N)

Autumn		Spring	
Tutorial 1	Tutorial 2	Tutorial 1	Tutorial 2
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Evidenced engagement with producing the ePortfolio (Yor N)

Tutor Notes (N.B. These entries are visible to personal tutors only). Confidentiality Information
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Undergraduate database
School of Biosciences

Undergraduate | Modules | Skills | Exam marking | Research marking | Student by module | CW deadlines | Current user: abbf

Year 3 competencies for:

Project supervisor comment-competencies:

Project risk assessment completed Yes No

PTY coordinator comment:

PTY risk assessment completed Yes No

Abstracts submitted

0-4

Tutor meeting attendance (Yor N)

Autumn		Spring	
Tutorial 1	Tutorial 2	Tutorial 1	Tutorial 2
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Evidenced engagement with producing the ePortfolio (Yor N)

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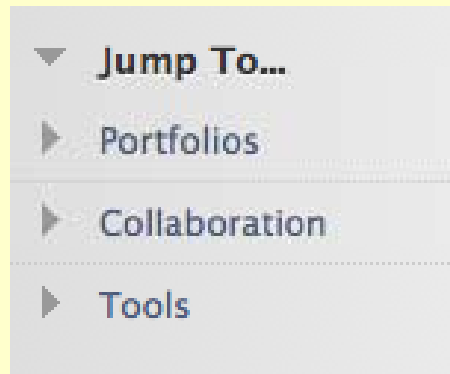
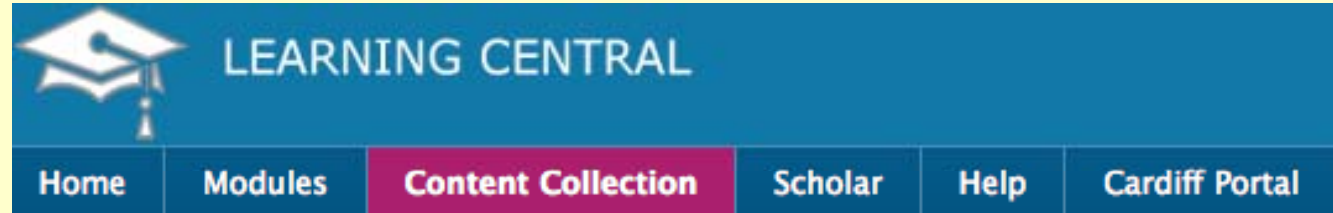
Record Keeping



Students

Logbook

ePortfolio



self-monitoring and reflection
assessing development
planning further action
recording evidence



Reflections

Students:

- appreciate the support once aims and objectives are understood
- see we care about their development and employability
- perceive benefits in theory (engagement lags behind)

self-directed approach to learning and formative work
requires a cultural change

instant vs. delayed gratification
“now I know ...I should have”

records depend on staff
database pulls to check entries/ remind and facilitate

both sides claim lack of information



How to measure impact



diagnoses to inform further development
(not assessing learning)

completion rates do not indicate achievement

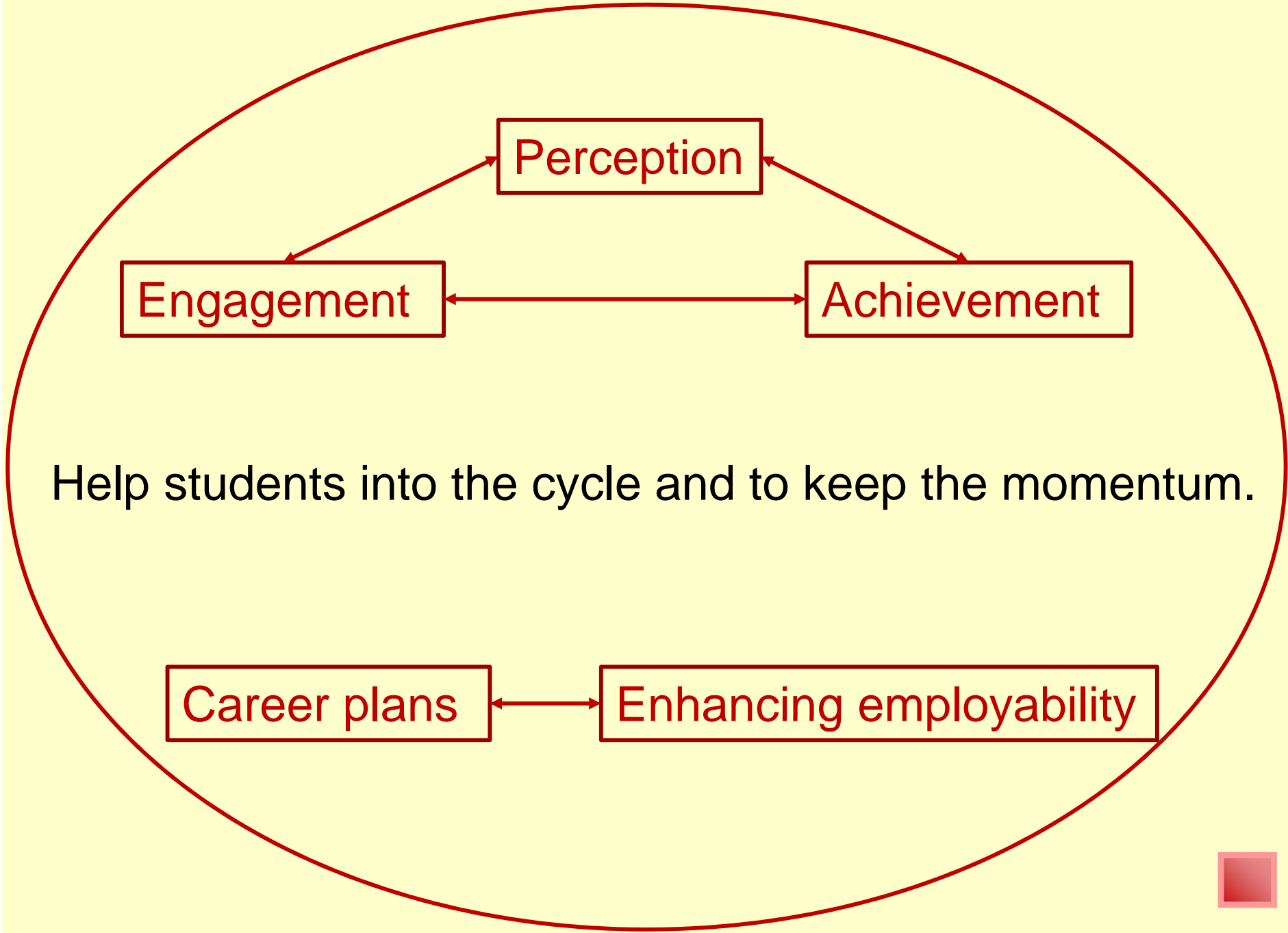
development takes place within and outside the scheme

Focus:

integrated approach/ integrating effect
interaction with personal tutor and supervisor
student experience
use of feedback



Catch 22



Ways ahead



routinely revise competencies and activities

adapt to changes to students' and employers' needs

improve communication to students and staff
to manage expectations and facilitate cultural change







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