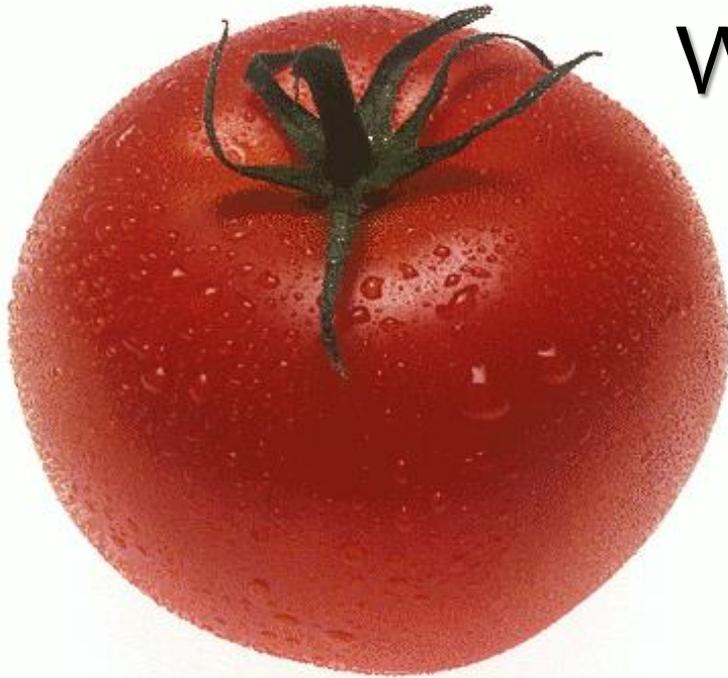


Skills and knowledge

Martin Barker | School of Biological Sciences



Who needs what, when?

Defining the terms

Product of learning

- **How?**



'Content' of learning

- Facts = **What?**

Acquiring skills and knowledge

Wow! I
learnt so
much

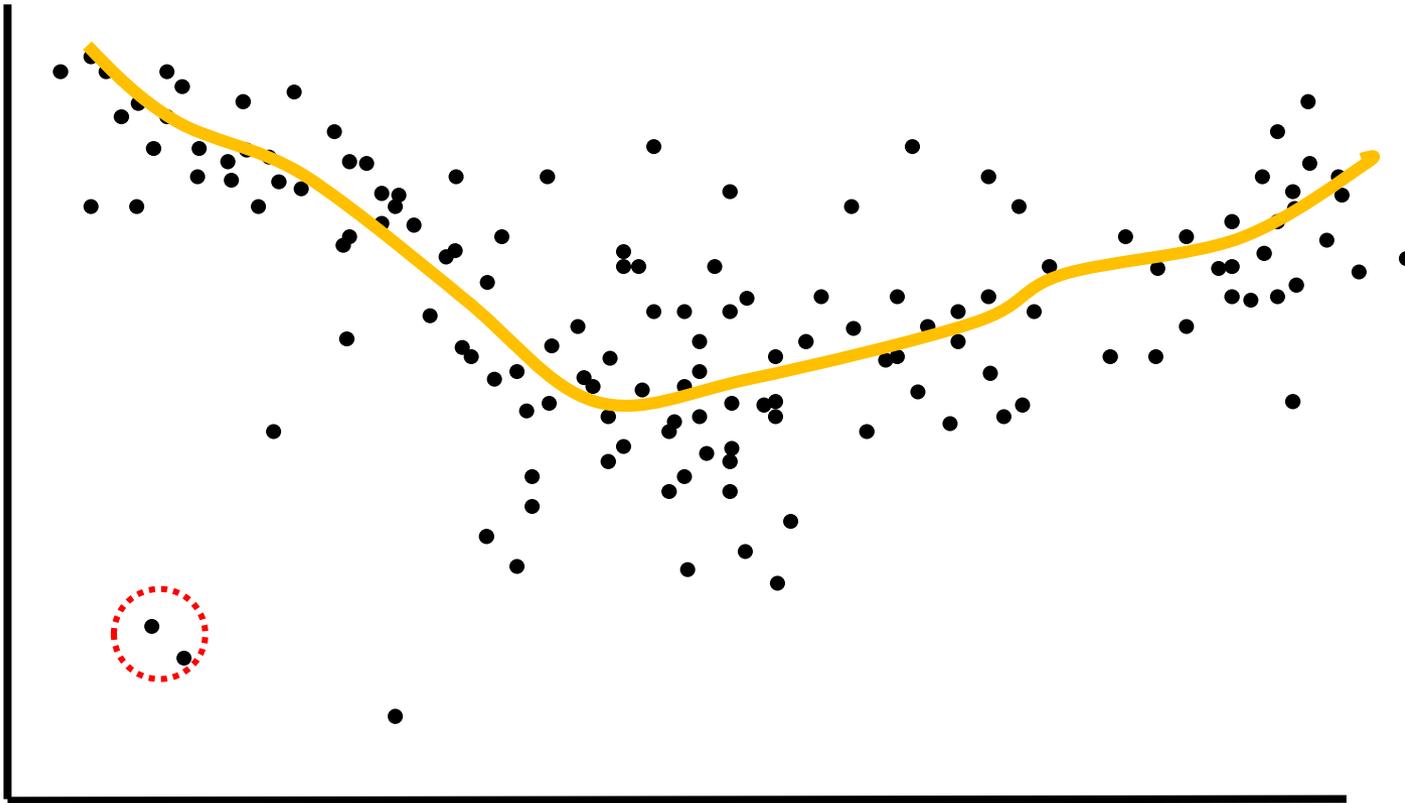
I wonder what
I will learn
today...



Acquiring skills and knowledge: transitions



Learning



First Year

Second Year

Third Year

Fourth Year

Stage

Acquiring skills and knowledge: transitions

continuum: 1° ► 2° ► 3° ► 4° education



School: Curriculum for Excellence

- Successful learners
- Confident individuals
- Responsible citizens
- Effective contributors

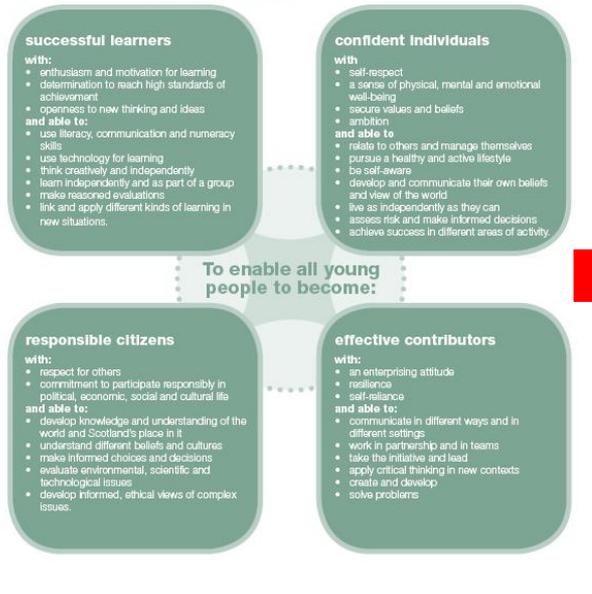
UG: Graduate Attributes

- Academic excellence
- Personal development
- Active citizenship
- Critical thinking, communication

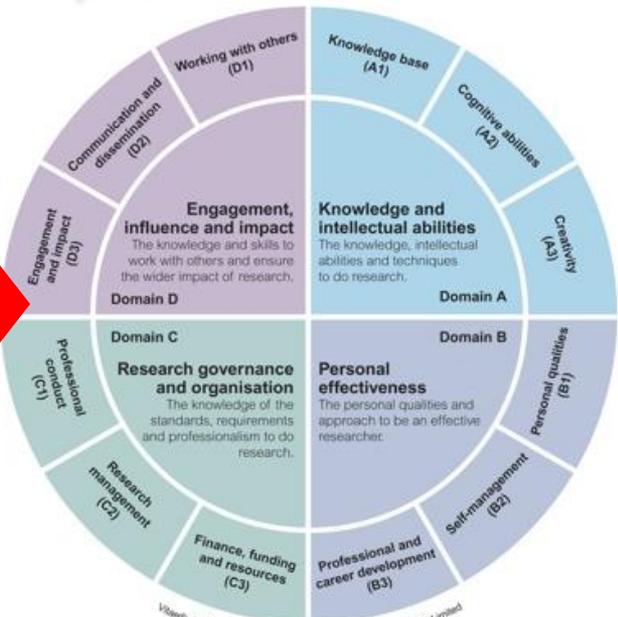
PG: Researcher Developer Framework

- Knowledge, intellectual development
- Personal effectiveness
- Research professionalism
- Engagement, influence, impact

Purposes of the curriculum 3-18

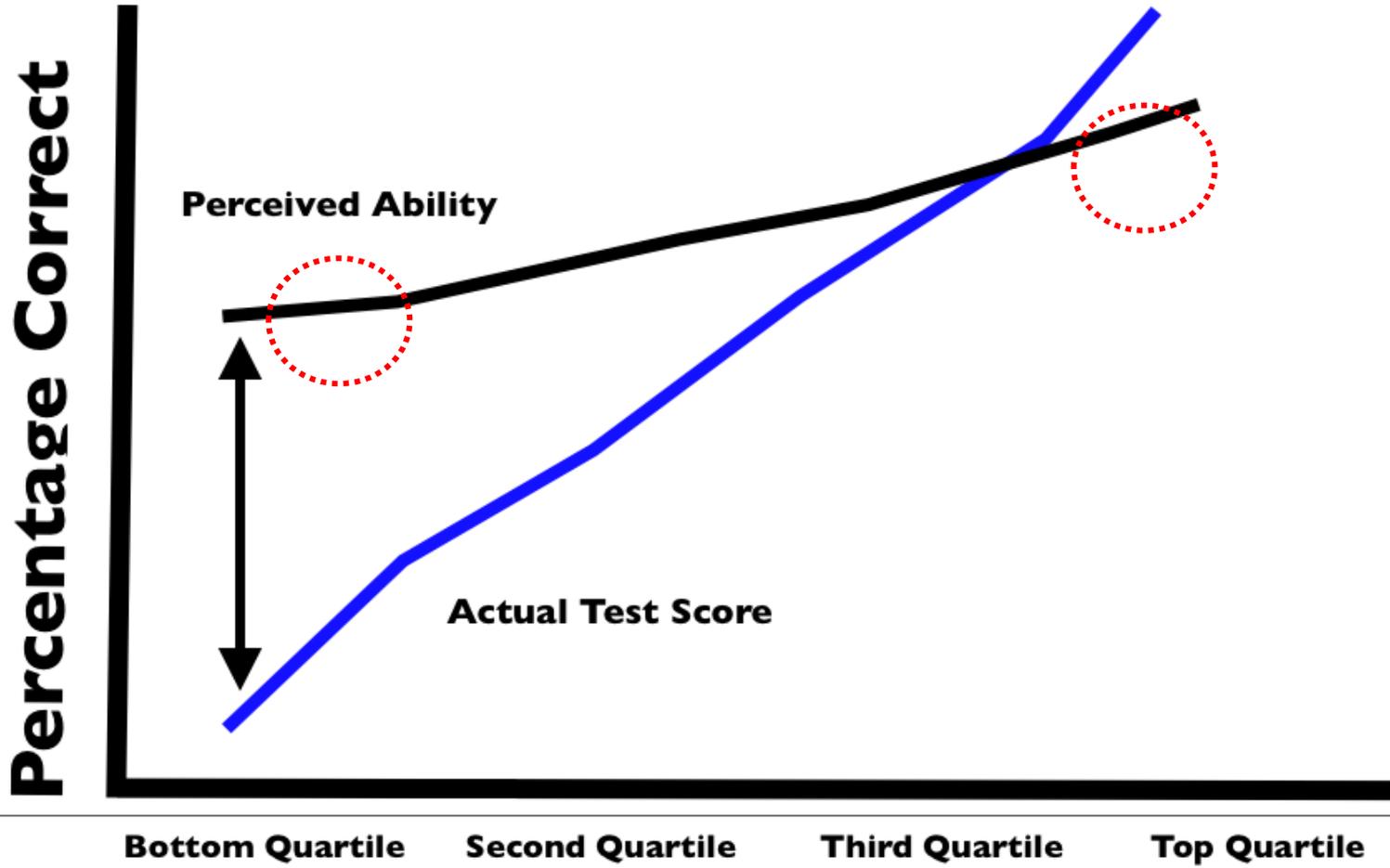


Academic excellence	Critical thinking and effective communication
<ul style="list-style-type: none"> • In-depth and extensive knowledge, understanding and skills at internationally-recognised levels in their chosen discipline (5); • A breadth of knowledge, understanding and skills beyond their chosen discipline(s); • An ability to participate in the creation of new knowledge and understanding through research and inquiry; • A contextual understanding of past and present knowledge and ideas; • An intellectual curiosity and a willingness to question accepted wisdom and to be open to new ideas 	<ul style="list-style-type: none"> • A capacity for independent, conceptual and creative thinking; • A capacity for problem identification, the collection of evidence, synthesis and dispassionate analysis; • A capacity for attentive exchange, informed argument and reasoning; • An ability to communicate effectively for different purposes and in different contexts; • An ability to work independently and as part of a team; • A diverse set of transferable and generic skills
Learning and personal development	Active citizenship
<ul style="list-style-type: none"> • An openness to, and an interest in, life-long learning through directed and self-directed study; • An awareness of personal strengths and weaknesses; • A capacity for self reflection, self discovery and personal development 	<ul style="list-style-type: none"> • An awareness and appreciation of ethical and moral issues; • An awareness and appreciation of social and cultural diversity; • An understanding of social and civic responsibilities, and of the rights of individuals and groups; • An appreciation of the concepts of enterprise and leadership in all aspects of life; • A readiness for citizenship in an inclusive society



Dunning-Kruger effect

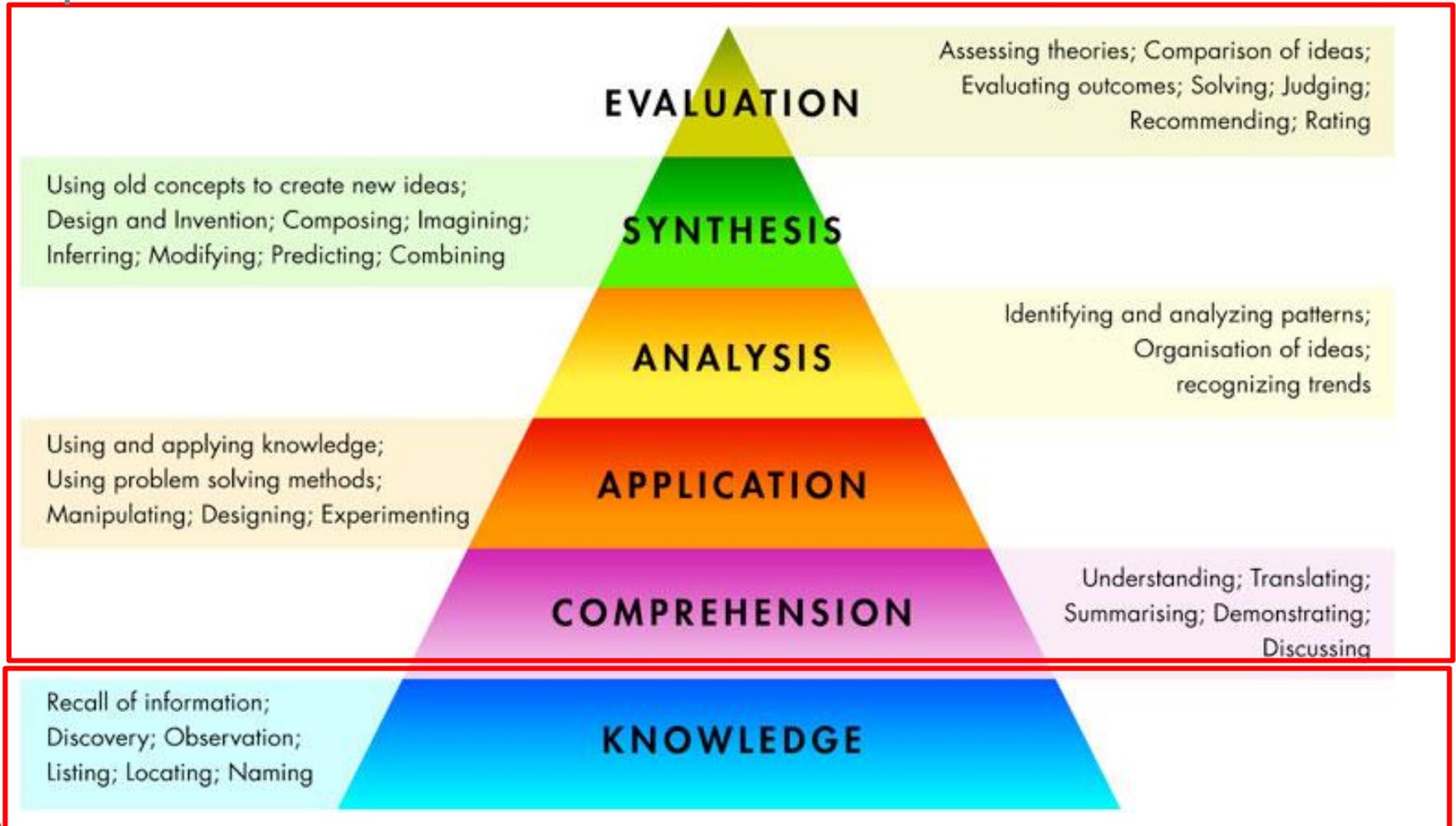
Not knowing what you don't know



Acquiring skills and knowledge

Skills?

B L O O M S T A X O N O M Y



How important is knowledge?



“University Challenge is all about accumulated knowledge and you either have that or you don’t.” Daisy Christodoulou

‘The Knowledge’

Tested on:

- 320 routes
- 25000 streets
- ~34 months training

increase in posterior hippocampus

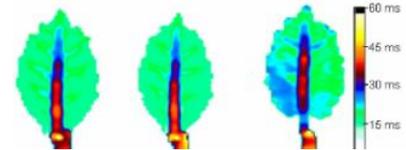
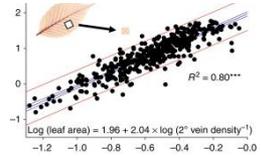
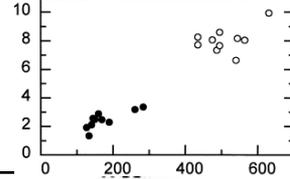
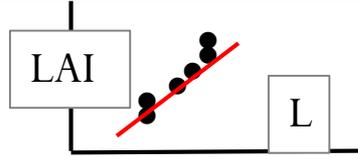
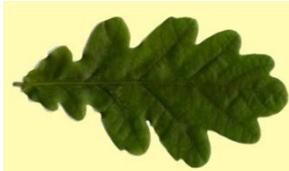
taxi driver

vs

control

“Are London taxi drivers particularly clever?”

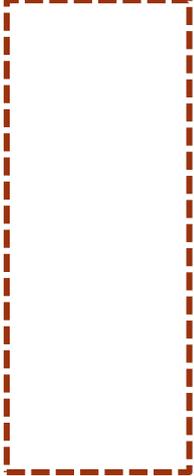
Applying Bloom's taxonomy: lexicon

Cognitive area	Verbs	Instructions	Examples
6 Evaluation Developing opinions, judgements, decisions	justify support value	“What criteria would you use to assess.....?”	
5 Synthesis Combining ideas to form a new whole	predict suggest construct	“What would you predict from....?”	
4 Analysis Separating a whole into component parts	classify compare distinguish	“What evidence is there that... ?”	
3 Application Use of facts, principles, rules	demonstrate illustrate find out	“Calculate the mean area of ...”	replicate 1 0.0308a 2 0.0315a 3 0.0330a 4 0.0336a 5 0.0332a
2 Comprehension Organisation and selection of ideas	describe summarise restate	“Explain what happens to ... when...”	
1 Knowledge Identification and recall	define list name	“Identify this...”	

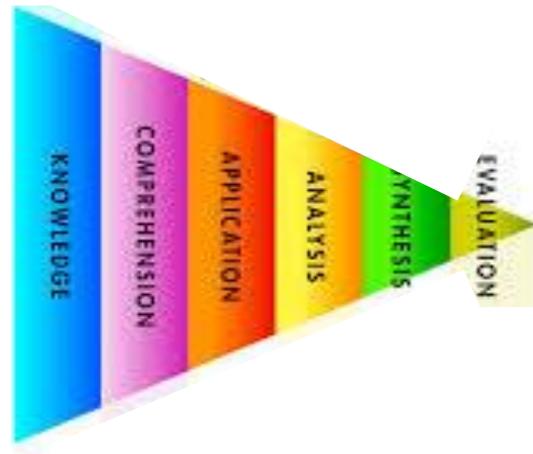
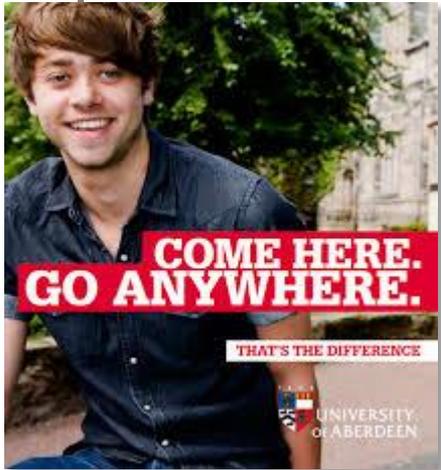
Acquiring skills and knowledge: transitions



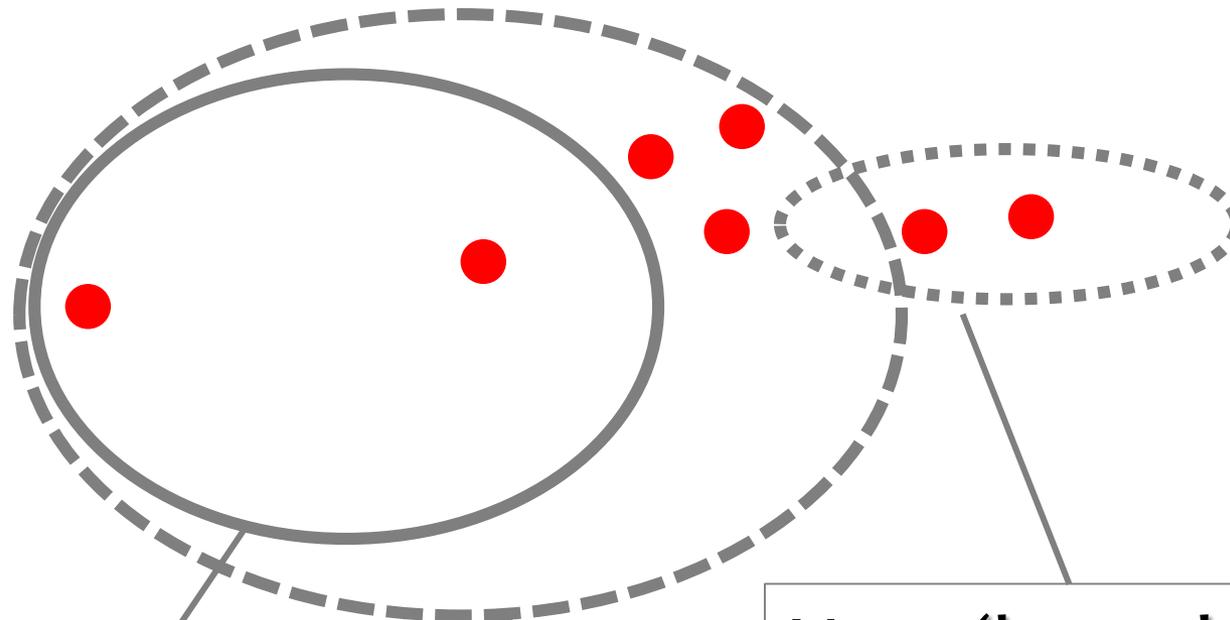
ye Student's Progress



de romatische forpait et desinst



Teaching knowledge & skills



New 'knowledge'

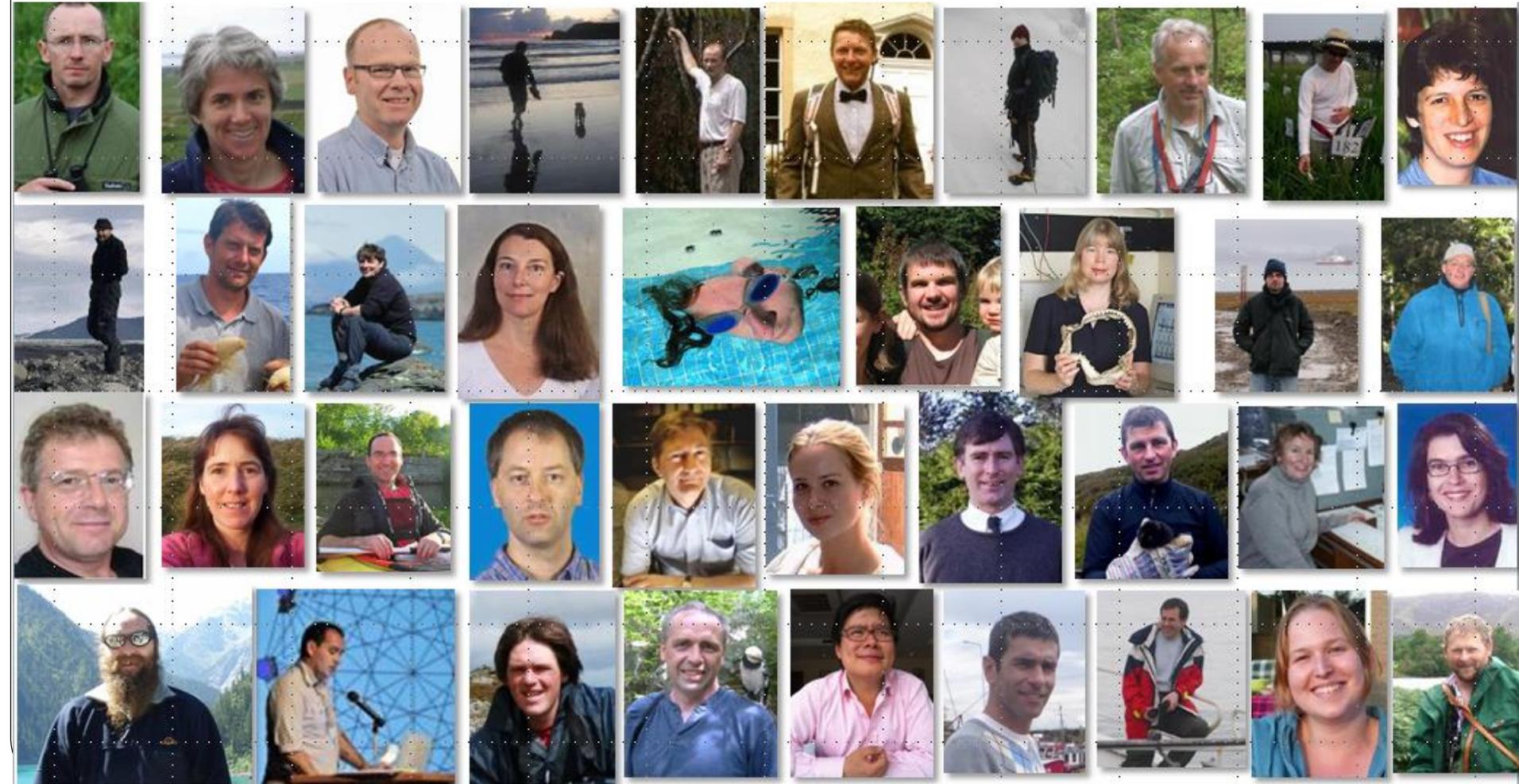
Existing 'knowledge'

Expanded 'knowledge'

Teaching knowledge & skills

Variables include

- staff
- disciplines
- levels



Graduate attributes

School leaver	1 st year	2 nd year	3 rd year	4 th year
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Academic excellence

1. In-depth and extensive knowledge, understanding and skills at international- recognised levels in their chosen discipline(s)

2. A breadth of knowledge, understanding and skills beyond their chosen discipline(s)

3. An ability to participate in the creation of new knowledge and understanding through research and inquiry

4. A contextual understanding of past and present knowledge and ideas

5. An intellectual curiosity and a willingness to question accepted wisdom and to be open to new ideas

The delivery of knowledge and skills occurs **within the context of graduate attributes**

Critical thinking and effective communication

6. A capacity for independent, conceptual and creative thinking

7. A capacity for problem identification, the collection of evidence, synthesis and dispassionate analysis

8. A capacity for attentive exchange, informed argument and reasoning

9. An ability to communicate effectively for different purposes and in different contexts

10. An ability to work independently and as part of a team

11. A diverse set of transferable and generic skills

Learning and personal development

12. An openness to, and an interest in, life-long learning through directed and self-directed study

13. An awareness of personal strengths and weaknesses

14. A capacity for self reflection, self discovery and personal development

Active citizenship

15. An awareness and appreciation of ethical and moral issues

16. An awareness and appreciation of social and cultural diversity

17. An understanding of social and civic responsibilities, and of the rights of individuals and groups

18. An appreciation of the concepts of enterprise and leadership in all aspects of life

19. A readiness for citizenship in a civilised and inclusive society



GRADUATE ATTRIBUTES

The University of Aberdeen Graduate Attributes are a wide- ranging set of qualities which you will develop during your time as a student.

ACHIEVE at ABERDEEN

- Academic Excellence
- Critical Thinking & Communication
- Learning & Personal Development
- Active Citizenship

www.abdn.ac.uk/graduate



Teaching knowledge & skills

University of Aberdeen

SENAS2
Appendix 2

NEW PROGRAMME PROPOSAL

GUIDANCE NOTES are available on-line [by highlighting the relevant Question number or] at:

http://www.abdn.ac.uk/registry/senas/senas2_guidance.shtml

1. Programme Title:

26. A University of Aberdeen education will enable graduates to become: Academically excellent; Critical thinkers and effective communicators; Open to learning and personal development and Active citizens. In what ways does this course support the development of the University's Graduate attributes? Please indicate below under the following headings:

Academically Excellent:

- All aspects of the course promote extensive knowledge, understanding and skills relating to biological sciences.
- Participation in seminars and workshops promotes an understanding of how research contributes to the acquisition of knowledge.
- Critical appraisal of course material promotes an understanding of how the quality of academic material.

Open To Learning And Personal Development:

- An awareness of personal strengths and weaknesses and a capacity for self reflection, self discovery and personal development are promoted through collaborative participation in group work (seminars and workshops) and regular feedback on completed in-course

Critical Thinkers And Effective Communicators:

- The seminars and workshops promote both independent and collaborative thinking, a capacity for problem identification, the collection of evidence, synthesis and dispassionate analysis, a capacity for attentive exchange of views, informed argument and reasoning, an ability to communicate effectively with student peers and academic staff and an ability to work both independently and as part of a team.
- The specific skills of effective communication are taught within the course.

Active Citizens:

- An awareness and appreciation of social and cultural diversity and the rights of individuals and groups is promoted through collaborative exercises (seminars, workshops and some coursework tasks) where students of different backgrounds (race, culture, religion) often work together.

When we are designing new courses, delivery of knowledge and skills is part of the SENAS proposal



Teaching knowledge & skills

WARWICK

Text only | Sign in

Careers and Skills More...

Student Careers and Skills

Develop your skills

Getting started

Applications & interviews

Find a job

Get experience

What's on?

Undergraduate Skills Programme

Undergraduate Skills Programme (USP)



Use the Undergraduate Skills Programme to develop your academic, personal and professional development skills, improve your marks, impress potential employers, and network with other Warwick students.

Stand out from the crowd: identify, develop and know how to articulate what you have to offer.

Learn at your own pace, where, when and how you want to. Just choose which parts of the programme suit you best.

The USP is free and available to all undergraduates at Warwick.

What we offer:

- [Face-to-face: academic study skills advice](#)
- [Undergraduate Skills workshops](#)
- [Workshops summer 2012](#)
- [Warwick Skills Portfolio Award](#)

Developing your academic, personal and professional development skills

Academic skills:

- [Writing essays and assignments](#)
- [Referencing and avoiding plagiarism](#)
- [Making presentations](#)
- [Research skills](#)
- [IT](#)

[All academic skills topics](#)

Personal and professional development skills:

- [Knowing yourself](#)
- [Organising yourself and time](#)
- [Thinking about a career](#)
- [Oral communication](#)
- [Written communication](#)

[All personal and professional development skills topics](#)

For any queries on the Undergraduate Skills Programme email: skills@warwick.ac.uk

Undergraduate Research Scholarship Scheme (URSS)

Want to know how you can get involved in undertaking original research and getting some experience as a researcher at the University?

- [Undergraduate Research Scholarship Scheme \(URSS\)](#)

Contact us:

Site A-7



Lots of other universities have coordinated programmes for delivering K&S

Let's not forget about wisdom

Knowledge  Wisdom

