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# Using Objective Structured Practical Examinations (OSPE's) to consolidate practical skills and assess graduate attributes in life sciences

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# Background to Project

- Need for a final year, rigorous practical experience.
- Assess a wide variety of students from different backgrounds.
- Integration of visiting students.
- How do we assess skills that are perhaps not the usual focus of our teaching and learning activities?
- Curriculum Reform and Graduate Attributes.
- Staff Succession Planning.
- Preparation for Honours projects.



# Background to OSPE Design

## Aberdeen Graduate Attributes

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

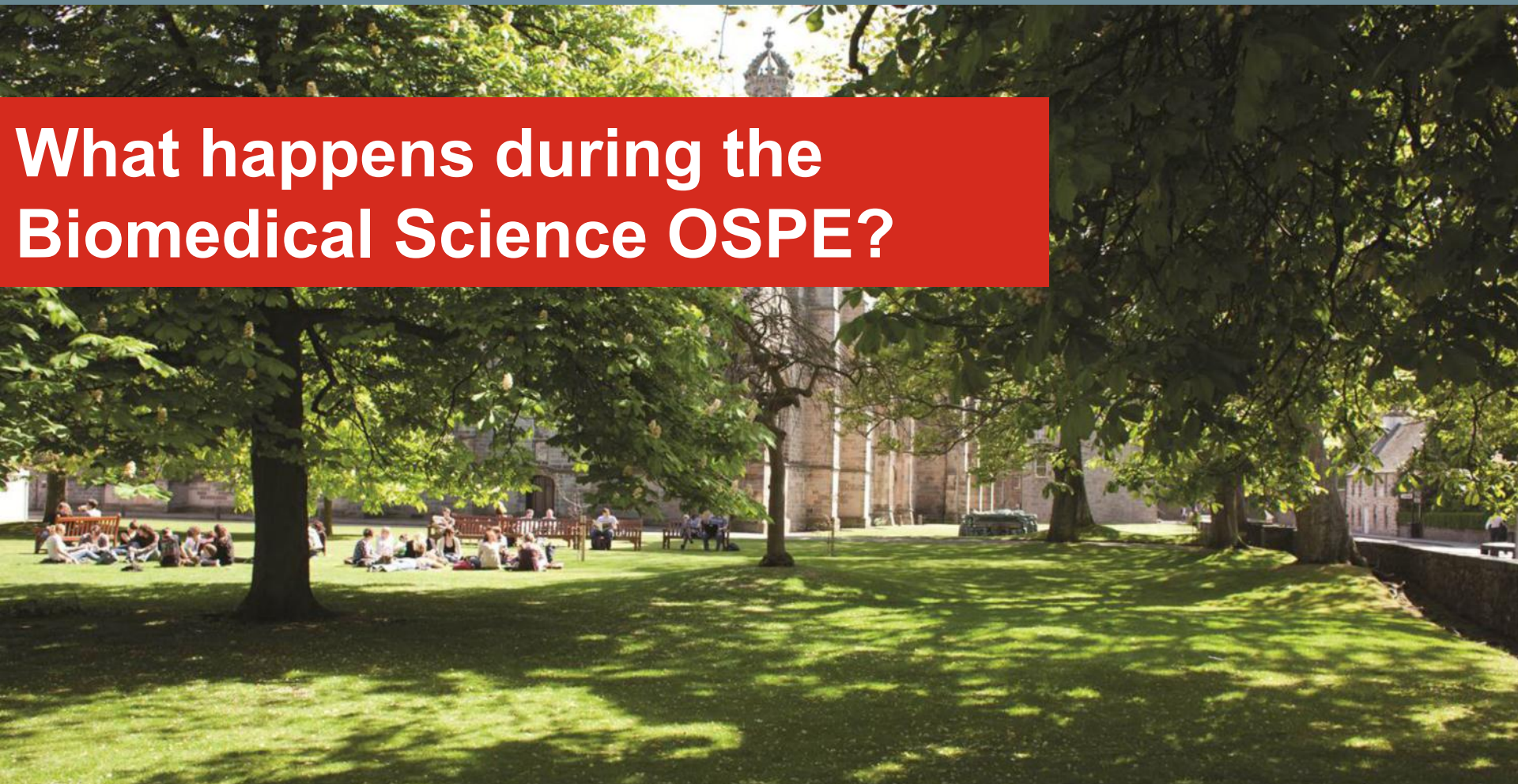
- **Objective Structured Practical Examination (OSPE) assessments - assess theoretical, practical and problem-solving skills at multiple stations.**
- **Marking criteria structured and published in advance.**
- **Students receive the same test and interaction with different examiners.**
- **Used in clinical courses a lot.**
- **Six stations, each assessing a mixture of different skills.**
- **Would this method be suitable to assess Honours sciences students in practical and communications skills?**
- **Is it an efficient method to assess a large Honours class and provide timely and USEFUL feedback?**

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# What happens during the Biomedical Science OSPE?



## Outline Protocol

- 100 students over 2 assessment days
- Assessment tasks introduced during an all day practical class

- VLE resources/extra tuition provided
- Students move round each station for assessment

- Objective and consistent
- Stations reusable and adaptable

# How does the OSPE work?

Select your stations/timing to suit your students



- **Students reported they found the process “a bit stressful” as they had to prove they knew how to perform specific tasks/skills.**
- **However, found it worthwhile preparation for upcoming practical work and employment opportunities.**
- **Staff felt it was a useful way of assessing wide array of graduate attributes at Honours level WITHOUT large amounts of paperwork.**
- **However, requires planning, clear aims and flexibility in initial stages.**
- **Students reported thinking more about skills expected in future employment, and also considering their strengths and weaknesses.**
- **Assessment of communications skills improved – sometimes forgotten in traditional science-based curricula.**
- **Students felt they could display their full range of knowledge, skills and abilities.**
- **Strong support team is required to initially set up such assessment activities.**



## Advantages

Can assess a range of graduate attributes not easily accomplished via traditional assessment methods

Students often try much harder to succeed as they cannot hide behind written work or group work

Easily adaptable for different skills, disciplines and locations

Fast and easy way to assess practical skills in large groups of students

## Disadvantages

Lot of effort to initially set up

Planning and organisation are key to success

Some nervous students need reassurance if previously reliant on written work

Need backup plans

## How can we make this work better?

- **Remove more paper and automate as much as possible.**
- **Increase the number of staff and subject that can take part in the OSPE.**
- **Remove any subjectivity in assessment.**
- **Could we deliver feedback and grades to the VLE almost immediately?**
- **Outreach, remote and rural considerations?**

# Use of iPads

## Development of an app that can be adjusted by the assessors



## The App

- Subjective scoring replaced with clearly defined marking criteria.
- Questions structured – improved consistency between examiners.

- Marking scheme (positive and negative marks) not visible to examiners
- Comments added manually in final section

- Different styles of assessment and feedback utilised

- Marks and comments quickly downloaded to spreadsheets after examination

# Screenshots from OSPE App





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