UNIVERSITY OF BIRMINGHAM | SCHOOL OF PHYSICS AND ASTRONOMY

Physics Teaching in Schools

**(An optional 10 credit module for Year 3 students
On Physics Degree courses)**

Information for Teachers

Contents: Page:

1. Introduction 2

2. Overview 2

3. The role of the undergraduate 4

4. The undergraduate's preparation before they come to the school 5

Annex A. End of module assessment form 6

Annex B. University Contacts 8

1. INTRODUCTION

Thank you for agreeing to take one of our physics undergraduates into your classroom. We hope that you and your pupils will find their presence useful.

This document is intended to give you an overview of the scheme and provide more detail about the nature of the relationship you will have with the University and the undergraduate. A list of all the University contacts for this module, can be found in Annex B. If you are in any doubt about any aspect of the scheme, please do not hesitate to contact the University Module Co-ordinator.

You may have been involved in previous *student-tutoring* schemes. This scheme differs in that undergraduates will receive academic credit for their involvement. This brings greater structure to their interaction with you and allows you to set specific goals and targets with them. The module runs during the Spring term (January to March).

2. OVERVIEW

A small number (20 - 25) of final year undergraduates will take a module called *Physics Teaching in Schools* as part of their degree. The co-ordinator of the module is Dr Maria Pavlidou, a member of academic staff from the School of Physics & Astronomy at the University of Birmingham. Participating undergraduates will be paired with you, a Physics teacher in a school, and will spend a few hours within a day each week in your school for a period of about ten weeks.

The aim of this scheme is to provide you with a knowledgeable and enthusiastic *extra pair of hands* who will offer practical assistance in the classroom and help to engage pupils in science, technology, engineering and maths (STEM). It provides an opportunity for more pupils to get individual attention in the classroom, from young people who are passionate about STEM and who are good role models for pursuing STEM beyond school. At the same time, the module provides an opportunity for final year undergraduates to gain valuable transferable skills through first-hand experience of STEM education.

The undergraduate will have certain objectives to achieve during the module, but our aim is to make the scheme easy to implement and to minimise the additional demands on your time.

Before the module

Before the module commences, the extent of your role will be as follows:

- to contact the University module co-ordinator to briefly discuss ways in which you can make most effective use of the undergraduate and help them to achieve their objectives;
- to meet with the undergraduate before the end of the Autumn term, to discuss their aims and objectives, their role and what will be expected of them, and to outline the areas of teaching to be covered during the Spring term. The undergraduate will contact you directly to arrange a convenient time with you for this meeting;
- to agree with the undergraduate a suitable time for their weekly visit, as soon as school and university timetables are available.

During the module

The level and nature of the interaction you have with the undergraduate will be largely up to you. However, you will be a source of guidance and advice to the undergraduate, and it is expected that you will provide some level of briefing to the undergraduate about each forthcoming lesson, e.g. five minutes at the end of the preceding lesson or in an email the day before.

The University module tutor of the undergraduate might want to arrange to be present at one of the undergraduate's visits in the latter part of the module to gain some experience of the classes the undergraduate is involved with, in order to aid the assessment process. They will contact you in advance to agree a convenient day to do this.

After the module

At the end of the module, you will be asked to complete a brief assessment of the undergraduate's performance and progress during the term (see Annex A). This element of the undergraduate's assessment constitutes 20% of the total mark given to the undergraduate for this module.

Throughout the spring term, the module tutor of the undergraduate will be available to you to address any problems and might also request a meeting with you to discuss the progress of the undergraduate.

3. THE ROLE OF THE UNDERGRADUATE

The undergraduate's activity in the classroom will develop during the term largely at your discretion. Initially the undergraduate will need to study your interaction with pupils and the approaches you take to the introduction and development of topics and concepts, and they may want to discuss specific situations with you. We would expect them to rapidly become more involved, possibly working with small groups on specific topics or activities, or in setting up practicals or demonstrations. As the undergraduate gains experience and confidence, they could be asked to take a more responsible role such as teaching parts of a lesson or using equipment to demonstrate a principle in front of a class. All of this will depend on you, the undergraduate, the class and the subject.

Additionally, you might feel that there is an opportunity to involve the undergraduate in activities with pupils outside the classroom, such as a Science Club, a trip to the appropriate University department, or to give a talk about undergraduate experiences, careers, etc.

In order to comply with insurance cover for the scheme, it is important that you never leave the undergraduate alone with any pupils under any circumstances. This is also important in ensuring that both undergraduates and pupils are protected from any unfair accusations.

In order for the undergraduate to gain academic credit from the module, they will have to:

- Keep a weekly logbook of their experiences and activities during the course. The undergraduate may wish to keep this journal confidential.
- Plan, prepare and create the materials for a Special Project. The project may be a novel method of presentation appropriate to a topic, e.g. a lecture or a classroom debate, a particular experimental demonstration, or an extra-curricular activity (e.g. helping to run or set-up an after school club or arranging a trip to the undergraduate's university department). This should be seen as a *climax* to the undergraduate's placement with

you, allowing them to practise some of the skills they have learned, and may involve the preparation of special materials. The choice of the project will need to be agreed with you and may follow a suggestion of yours, an original idea of the undergraduate's, or originate elsewhere. The module tutor may also have some involvement in the choice of project, to ensure the project is of the right level. The undergraduate should be able to deliver the project in the classroom or with a small group of pupils before the end of the module. **We would particularly ask you to draw the undergraduate's attention to any safety issues that you think are relevant.**

- Submit a written report of around 2000 words at the end of the module. This will be based on their special project and should give an in-depth approach to their chosen research topic.
- Give an oral presentation to University staff, on their experiences and/or a topic relevant to their placement

The logbook, the written report and the oral presentation will be assessed by the University staff, along with the assessment form that we request from you. This will form the basis of a mark for the module.

4. THE UNDERGRADUATE'S PREPARATION BEFORE THEY COME TO SCHOOL

- Undergraduates will be selected to take part in this module through an interview process conducted internally in the university
- Once they have been selected they will be required to pass a standard DBS check
- They will receive a day of training that will provide them with an introduction to working with children and conduct in the school environment.
- After their initial meeting with you, the undergraduate will be expected to draw up an action plan, a list of targets for the term and will also conduct their own research and background reading on the topic of their special project.

If you have any questions or concerns on any of the above, please contact the module co-ordinator.

ANNEX A – End of module assessment form

Teacher's Assessment

Name of undergraduate:	**School:**
Name of teacher:	
Main tutoring subject/s:	**Year/s of pupils:**

Please assess the undergraduate's levels of achievement in the following aspects of performance during their placement at your school. Simply circle one number in the scale 1-5 for each attribute. (1 = unacceptable, 5 = excellent).

General

Punctuality and Attendance	1 2 3 4 5
Enthusiasm for the subject, and ability to share this enthusiasm.	1 2 3 4 5
Communication – Use, style and content of spoken language appropriate for the context.	1 2 3 4 5
Communication - Ability to listen effectively and respond perceptively to others' views.	1 2 3 4 5
Taking responsibility for completing agreed activities.	1 2 3 4 5
Initiative and creativity in solving problems and challenges.	1 2 3 4 5
Negotiating targets, balancing own views with needs of others.	1 2 3 4 5
Working with and maintaining effective working relationships with teachers and pupils.	1 2 3 4 5

Preparation

Clarity of aims and learning outcomes	1 2 3 4 5
Awareness of the age/ability of group, (e.g., approach, types of materials and style).	1 2 3 4 5
Recognition of safety issues.	1 2 3 4 5

Presentation/discussion

Quality of presentations: clarity, style, use of visual aids and demonstrations.	1 2 3 4 5
Keeping material in context of syllabus.	1 2 3 4 5
Application of relevant principles when answering questions	1 2 3 4 5

Demonstrations, supporting practical work

Competence with experimental equipment and procedures	1 2 3 4 5
Practical implementation of safety procedures.	1 2 3 4 5
Attitude: (professional, helpful, supportive and patient)	1 2 3 4 5

General Comments: Please summarise briefly below what the undergraduate did during their placement with you and in which areas they were most effective. Please make reference where appropriate to their overall performance, ability to interpret relevant principles into terms and actions appropriate for your pupils, ability to adapt to the requirements of your pupils as well as familiarity with and knowledge of the relevant elements of their subject.

Please continue on another sheet if necessary

Student's main strengths:

Please continue on another sheet if necessary

Student's main weaknesses:

Please continue on another sheet if necessary

Are you happy for us to pass your comments on to the undergraduate? Yes / No

Signed: _____ Name (please print) : _____
Date: _____

ANNEX B - Contacts at the University of Birmingham

Module Co-ordinator and Module Tutor:

Dr Maria Pavlidou
Lecturer and School Liaison Officer,
School of Physics & Astronomy,
University of Birmingham,
Edgbaston,
Birmingham, B15 2TT
Tel: 0121 414 4632
Email: M.Pavlidou@bham.ac.uk

Other Module Tutors:

Mr Daniel Cottle
Lecturer in Physics and Secondary Education (Physics),
School of Education,
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Edgbaston
Birmingham, B15 2TT
Tel: 0121 414 4456
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