**Challenges in the School of Mathematics**

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1. **Background**

The School of Mathematics started running a real-world multi-discipline ‘Challenge’ for students in 2018. While the original Challenge was run over a number of week, it has evolved to run in Flexible Learning Week, to allow the students to fully commit their time. This also offers companies a unique opportunity to engage with our students as at present, only one challenge runs a year. The Challenge focusses on giving students designated time to improve their transferable skills while under time constrains and the pressures of the real-world.

Industry involvement with the challenge really brings the Challenge to life for the students and is something that we are enthusiastic to continue to offer. This gives companies direct access to a pool of dedicated, diligent and skilled students in the later stages of their undergraduate or postgraduate degree. The Challenge is supported by Academic staff from each of the represented Schools, the Student Development Team and in some cases PhD students too.

There is no direct financial commitment but we do ask that the company provide a prize for the winning student group. We do however ask for a commitment of time; in the build up to the Challenge regular meetings will be required. We also ask that, as a minimum, the launch event for the Challenge and the final presentations are face to face. The Q&A sessions that happen throughout the week can be made hybrid, if required, or these can be face to face too.

1. **Previous Challenges**

Previous Challenges partners;

2022/2023 – Saxavord Space Port UK

2021/2022 - HCVD

2020/2021 - DMA

2019/2020 - Edinburgh Airport

The Challenge typically allows for multiple disciplines to apply skills they have developed in new and different contexts. For many of our students this will be the time time they have worked in such a way. This unique opportunity is valued by the students to develop the transferable skills needed for employability.

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| **Day 1** | The Challenge starts with a launch event where the company can talk to the students about the background to the problem, setting context before the problem is revealed. The student can then ask any questions they may have about the problem before getting started. They will students will spend the full day together working through the problem with academic staff, Student Development and company representation to help. |
| **­Day 2-4** | These are half days for the students where they have an hours Q&A with the company to ask any questions that may have arisen, the Q&A can be scheduled at a time to suit. The rest of the time the student have to work through the problem, learn new techniques, to research, run models and work together toward the final solution. |
| **Day 5** | The students will have a presentation to give to a panel made up of Academic staff and company representation. A winner will then be picked for the groups and a prize giving will then take place. |

1. **Operation and practicalities**
   1. Student sign up

The event is already in the students calendars, so they know when it is. Once a company has been confirmed then we will start advertising the challenge to the students and asking them to sign up via a form. The students will be asked to give a short statement, expressing why they are interested in participating in the Challenge.

* 1. People Involved in the Challenges:

1. Company partner
2. Student Development Team – non Academic staff within the School of Mathematics
3. Academic staff from all Schools involved
4. Business Development Executives from the School of Mathematics
5. **Timeline**

This timeline give an example of dates:

* October – Call to companies goes out
* 20th November – Closing date for interest
* 30th November – Initial contact made with company by Student Development Team
* 4th December to 15th December – Problem Development involving company, Academics and Student Development Team
* December – January (22nd final sign up date) - Advertising to students
* 22nd January - Problem finalised
* 5th February - Final meeting involving company, Academics and Student Development Team
* 19th February - Challenge week!

1. **Responsibilities**

The student, the company and the School each have a role to play in ensuring the success of the Challenge.

* 1. The student

The students are responsible for signing up for the Challenge and committing to attend. They are responsible for their own work load, managing their time and ensuring they have something to present at the final presentations.

5.2 The company

The company are responsible for providing the initial Challenge question, background to the Challenge and any relevant data sets potentially needed. The company are also responsible for providing prizes for the winning team. The company are committing their time to the Challenge during the week of the 19th February (full day Monday and Friday as well as at least 1 hour Q&A session Tuesday-Thursday)

5.3 The School

The School are responsible for supporting the students to ensure they can:

* Access the Challenge
* Work cooperatively
* Upskill if needed
* Provide extra academic support if needed

The School are also responsible for the booking of space, catering, advertising, administration and any other materials needed for the Challenge, including technology.

**FAQs**

**What is the time commitment?**

We would need a minimum commitment of:

Monday – at least a morning for the launch event (10-1pm)

Tuesday –Thursday – at least an hour for a daily Q&A session (10-11am)

Friday – at least an afternoon for the presentations (2-5:30pm)

Times given are only an example and we would be more than happy for you to have a longer presence, but this is the minimum expectation for the students and you to get the most out of the Challenge.

**What happens if I leave the company before the challenge?**

If you leave the company before the Challenge we would require someone else from the company to support the Challenge. In previous years there have been 2 or 3 people involved for just this reason. If you were to leave the company and wanted to still see the Challenge through, we would welcome you to the presentations where you could hear the students’ solutions.

**What outputs can I expect to see from the students?**

In previous Challenges each group has tackled the problem in a different way, thus creating different outputs. For the students it is the process that is crucial, developing transferable skills in a new content and working collaboratively with others. The outputs in the past have varied from presentations that have been taken back to companies and shown to boards, creating new areas for research and allowing elimination of data sets that show nothing of value for further research as well as creating code.