

FALMOUTH

UNIVERSITY

WELCOME TO ROBOTICS AT FALMOUTH.

Dear [NAME]

Welcome to Robotics at Falmouth.

We're getting in touch with some important information about your course as you prepare to join us. At the end of this letter, you will also find information about how you can make sure your skills and knowledge are of a standard whereby you will be able to hit the ground running from day one.

There is also a list of equipment that you should bring with you, as well as any other costs that you might incur throughout your course.

Your academic experience will be predominantly in person with some courses using a small amount of digital resources to support your learning. To engage in the digital learning activity, although you will be able to access IT suites on campus, you will benefit from a laptop to access the platforms and tools we use. You will be provided with free access to the Microsoft Office suite, (including Word, Excel and PowerPoint) while you study at Falmouth.

If you are eligible for a loan from Student Finance and have not yet applied, please do so immediately to ensure the loan is approved before you enrol. Once you enrol you are liable for the tuition fees. You can find more information from the Student Loans Company at: www.gov.uk/government/organisations/student-loans-company Advice on managing your finances whilst studying can be found on the University's website here: falmouth.ac.uk/study/student-funding/how-much-does-it-cost

Whilst you are doing your projects at university, you can engage with our community online. Join our Discord and introduce yourself: link.falmouth.games/discord

Over the summer, you can join our Step into Falmouth Sessions. These online workshops are designed to provide advice and guidance on settling into university life. They are scheduled to take place across three weeks in July and August. Some of them will also be recorded so you can watch them back at a time that suits you. More information can be found at falmouth.ac.uk/experience/new-students/step-into-falmouth

Over the summer, if you have any questions, you can join the Student Mentor team on Discord to talk about the course, living in Cornwall and what to expect at Falmouth. Our mentors are already studying on your course, so ask them anything you like. Find them at falmouth.ac.uk/experience/new-students/mentoring. Alternatively, email your name and your course to: studentmentors@falmouth.ac.uk and they will be in touch.

Over the next few weeks, we'll email you more important information about your course and life at Falmouth. If you're going to be away or out of contact, make sure you ask someone to check your emails and reply on your behalf.

We know there is a lot to think about before you start at university. So, we're here to help. If you have any questions, just get in touch with Applicant Services on +44(0)1326 213730, use LiveChat on our website or email applicantsservices@falmouth.ac.uk

Finally, we wish you an enjoyable summer and we're looking forward to welcoming you to Falmouth in September.

Yours sincerely,

Dr Michael James Scott

Associate Professor and Head of Computing

michael.scott@falmouth.ac.uk

Getting started

Your offer

If you have a conditional offer, your place is subject to meeting those conditions. This means we're waiting to receive your results or some more information before your place can be finalised. You can see these conditions on your UCAS Hub

<https://accounts.ucas.com/account/login>

If you need to ask us anything about your offer, get in touch with our Applicant Services team on +44(0)1326 213730, use LiveChat on our website or email applicantsservices@falmouth.ac.uk

Enrolment and Student Terms & Conditions

You'll get an email two weeks before the start of term telling you how to enrol online. You'll need to enrol before the first day of term to officially register as a student of Falmouth University and receive your undergraduate student loan.

When you enrol, you'll need to agree to and comply with the University's Student Terms & Conditions. These Terms & Conditions are important, and we encourage you to read them carefully, before enrolling. You can find them under 'Student Terms & Conditions' on our website www.falmouth.ac.uk/student-regulations

Tuition fees (per year)

2023-2024 full-time UK: £9,250

2023-2024 full-time International: £17,460

Term dates

You can find our term dates on the website at falmouth.ac.uk/experience/term-dates/term-dates-2023-24

Study Block 1 starts on Monday 18 September.

Teaching and assessment will be throughout the full 15 weeks of the study blocks.

Your timetable

Your academic timetable shows all scheduled learning activities and your course timetable. It will be published in early September. After you've enrolled, you can view it via the Student Portal at falmouth.myday.cloud/ or the Falmouth University App. You can download the app by searching the Google Play Store or Apple Store.

Welcome Week

Your timetable will show you where you need to go and when on Monday 18 September and throughout the week.

This is the week when you'll meet your course mates, course tutors and University staff. There will be important inductions to both your course and the wider University facilities and services, in addition to social activities organised by the University and Students' Union.

Pre-course preparation

Python Programming Project: essential

The course will primarily focus on developing your practical problem solving and programming skills, alongside fundamental knowledge of agile project management, computer science, and mathematics. There will be considerable emphasis on the challenges and opportunities presented by robotics and studio-based teamwork. Initially, we will gently introduce the principles of computing to you using Python, C# and Arduino IDE on Windows. This will ensure that, regardless of your level of prior programming experience, you are afforded the opportunity to develop a firm understanding of computing as a discipline and develop core competencies which are expected of all computing professionals. This forms the foundation that will then enable you to explore the richer, more complex programming constructs available in other languages.

It is important that you join the course with some programming experience, otherwise you will struggle. To this end, if you have never created your own software on the Windows platform using Python, you should do so in preparation for the course.

Firstly, you will need to setup a software development kit. Please download and install:

Python 3.9.5: link.falmouth.games/python39
PyCharm Community: www.jetbrains.com/pycharm/download/

We want you to get familiar with developing in Python so completing this course will be a good start:

www.codecademy.com/learn/learn-python-3

For reference for the Python language and constructs this is a great resource:

www.w3schools.com/python

When you're feeling more confident with programming fundamentals, your task is to:

Create a simple wall avoiding wheeled robot using a Microbit and Python.

Use the following materials for support:

Python3 Docs: docs.python.org/3/tutorial/index.html
MakeCode: <https://makecode.microbit.org>

To complete this project, you may want to purchase a basic robotic kit including motors, wheels, chassis, and sensor (£30 approx.):

<https://tinyurl.com/yck7mmpt>

You will also need to purchase a Microbit (£13 approx.):

link.falmouth.games/microbitv2

To get a good overview of using Python and Microbit we recommend you watch this video first:

link.falmouth.games/microbot-tutorial

If you are feeling adventurous, consider how you might make a wall following program that proceeds from a start point to an end goal.

Bring your robot and your solution with you to university.

There will be a Programming Olympiad in the first week of formal teaching on the Creative Computing module which will challenge your Python programming skills.

After you have successfully implemented your robot, you should familiarise yourself with the other programming languages and engines that you will be using on the Creative Computing modules:

C#: www.codecademy.com/learn/learn-c-sharp
 Unity: learn.unity.com/
learn.unity.com/course/beginner-scripting
learn.unity.com/project/intermediate-gameplay-scripting
 Brackeys: link.falmouth.games/ytbrackeys
 Arduino: www.arduino.cc

Exploring C++, SDL, OpenGL, and Arduino IDE will also be useful. We will cover these topics in more depth following the first stage of the course.

Reading: essential

Prior to your arrival, you **should** read:

Matarić, M., 2008. *The robotics primer*. Cambridge, Mass: The MIT Press.
 Read Free here: <https://pages.ucsd.edu/~ehutchins/cogs8/mataric-primer.pdf>

We also recommend that you read some or all the following books, although we do not expect you to have finished reading them by your first day of attendance:

Blum, J., *Exploring Arduino: Tools and Techniques for Engineering Wizardry*, 1st Edition. Indianapolis, IN: Wiley, 2013. £10

Keith, C., 2010. *Agile Game Development with Scrum*. Boston, MA: Addison-Wesley. RRP £43.

Martin, R.C., 2008. *Clean code: A Handbook of Agile Software Craftsmanship.*, Boston, MA: Prentice-Hall. RRP £20.

McComb, G., 2011. *Robot Builder's Bonanza*. 5th ed. New York: McGraw-Hill Education.

Staple, D., 2018. *Learn robotics programming*. Birmingham, UK: Packt Publishing. RRP £30.99

Bond, J.G. 2018. Introduction to Game Design, Prototyping, and Development from Concept to Playable Game with Unity and C#. Upper Saddle River, NJ: Addison-Wesley. RRP £32.

Dunn, F. & Parberry, I., 2011. *3D Math Primer for Graphics and Game Development*, 2nd Edition. CRC Press. RRP £53.

Read Free here: <https://gamemath.com>

Electronic copies of books will be significantly cheaper than hard copies. Some have been released online by authors as free PDF documents. As such, the cost of book purchases should not exceed £150 and can be significantly less.

Do not worry if you have not studied computing or advanced mathematics in a formal setting. We will cover everything that you need to know. However, some of you may find the learning curve quite steep. As such, to refresh your knowledge, we urge you to watch:

Mechatronics: www.youtube.com/c/HowToMechatronics

Computing: www.youtube.com/user/computerphile

Mathematics: www.youtube.com/user/numberphile

Course materials and equipment list and costs

Essential

You will need access to your own private personal computer to be able to put in the computer programming practice that is needed to become a computing professional.

A suitable personal computer for this course will likely cost around £1500. The latest advice about which computers we recommend you buy for your course is available here: github.com/Falmouth-Games-Academy/ga-computer-advice#readme

Global supply chain issues are having an impact on the prices of computers, due to the availability of computer chips, which means you don't get as much for your money at the moment than would usually be the case. However, you will have access to machines with a very high specification in our studios where you'll be expected to do most of your work.

Consumable electronics

You must reserve a budget of at least £40 to purchase additional materials and electronic components for your individual creative computing project. You should also anticipate a budget of at most £220 to purchase additional robotics kits and consumable materials for your multidisciplinary development projects.

Headset with Microphone

You will need a headset with a microphone for some classes. We recommend purchasing a high-quality headset for your comfort. Manufacturers such as *Sennheiser*, *Razer*, *HyperX* and *Corsair* are rated highly by our current students. These can cost between £30 - £150.

Webcam

You will need a webcam in some teaching. Manufacturers such as *Logitech*, *Microsoft*, and *Razer* are rated highly by our current students. These can cost between £25 - £100.

Internet Access

It is important that you secure sufficient access to the Internet as some materials are made available to you through our virtual learning environment. We recommend a fibre broadband connection if available, but a minimum of at least 5Mbps will be suitable for livestreaming content.

If you have further questions, need more detailed advice or would like us to check the suitability of a particular model, then please email games.support@falmouth.ac.uk