

COMPUTING FOR GAMES AT FALMOUTH

WELCOME TO BSC(HONS) COMPUTING FOR GAMES AT FALMOUTH.

I would like to welcome you to our growing game development community here at the Falmouth University Games Academy.

All of us on the Games Academy Course Team and the Meta-Makers Research Institute look forward to working with you.

This is the beginning of an exciting new course and your journey to become a successful computing professional in the games industry. We have worked with games industry veterans and professionals, pioneering games educators, and world-leading researchers, to prepare a rigorous and comprehensive curriculum for you. The course is tailored to maximise your employability; whether this is as an entrepreneurial indie game developer, a consultant specialising in a field of digital games technology, or as a professional programmer working in an established game development studio.

Your offer

Please remember that if you have been made a conditional offer to study at Falmouth, your place is subject to meeting those conditions. Conditional means that we are waiting to receive your results, or some more information, before your place is finalised. You can see any conditions in [UCAS Track](#). If you have any questions or concerns, please contact our Admissions team on 01326 213730 or admissions@falmouth.ac.uk.

First week of term

Your first day of attendance will be **Monday 12 September 2016**. You will meet with the Games Academy Course Team at **2pm** in the **Lecture Theatre A** in the **Du Maurier Building** on the **Penryn Campus** for your welcome talk.

You can download a copy of the [Penryn Campus map](#) from the Contact page of our website [here](#).

Your first week at Falmouth will be an induction and orientation week. There will be important inductions for both the course and the wider university, in addition to a number of social activities. You will also be given course outlines and timetables.

Between the course team, the University and the Student's Union, we have a full and exciting first week planned out for you all, which we will explain at this meeting. In addition to attending talks about what it will be like being a Falmouth University student, you will be expected to attend networking activities to meet your fellow new students as well as existing students within the Games Academy. Community and teamwork are central to our ethos and our studio-driven approach to practice.

You can find the preliminary course schedule online at Google Docs [here](#).

MyTimetable

<https://mytimetable.falmouth.ac.uk/> available from 1 September 2016

This is the link to MyTimetable, your online academic calendar which shows all scheduled learning activities and your course timetable. It will be available from 1 September 2016, however, timetables can be subject to change. To keep up to date, we recommend that you export the feed to your chosen device (mobile, tablet, laptop or desktop). An induction will be offered on the use of MyTimetable during freshers' week. Students will have access to their individual student timetables, where appropriate, once they have completed their online enrolment and IT induction.

Pre-course preparation

Project

Essential

The course will primarily focus on developing your practical C++ programming skills, as well as computing and game-making knowledge, across the three years of the degree. However, we will initially introduce the principles of computing to you using Python. This will ensure that everyone develops a firm understanding of computing before introducing the richer and more complex programming constructs available in C++ after Christmas.

If you have never used Python 3 before, we recommend that you familiarise yourself with the language using PyCharm and relevant online tutorials. Experiment by writing some simple programs and, if you are feeling ambitious, try making your own game using the PyGame library!

To help you get started, some free online resources are listed below:

Python: <https://www.python.org/downloads/release/python-343/>

Tutorials: <https://docs.python.org/3/tutorial/index.html>

IDE: <https://www.jetbrains.com/pycharm/>

PyGame: <http://www.pygame.org/hifi.html>

If you have never used C++ before, then please start to familiarise yourself with C++14.

Windows users should download and set-up Visual Studio, while Mac users should download and set-up Xcode, both of which are available free online:

Visual Studio: <https://www.visualstudio.com>

Xcode: <https://developer.apple.com/xcode/>

For your convenience, some free online tutorials can be found here: <http://www.learncpp.com>

Please do not worry if you have not done A-level Mathematics and/or Computing! We will be covering all of the mathematical and computing knowledge that you will need to know; specifically tailoring the topics to include those most important to games development. However, we recommend that you familiarise yourself with basic computing and mathematics topics if you have not studied these for a number of years. To this end, the following YouTube channels may prove helpful:

Game Math: <https://www.youtube.com/playlist?list=PLW3Zl3wyJwWOpdhYedID-yCB7WQoHf-My>
Computerphile: <https://www.youtube.com/user/Computerphile>
Numberphile: <https://www.youtube.com/user/numberphile>

Reading

Essential

We also recommend that you purchase and read the following books, although we do not expect you to finish reading through them before you arrive:

Stroustrup, B., 2012. *Programming: principles and practice using C++*. Addison Wesley, Boston, MA. RRP £31.

Spraul, V.A., 2012. *Think like a programmer: an introduction to creative problem solving*. No Starch Press, San Francisco, CA. Available Free Online.

Matrin, R.C., 2008. *Clean code: a handbook of agile software craftsmanship*. Prentice-Hall, Boston, MA. RRP £24.

Kodicek, D., 2005. *Mathematics and physics for programmers*. Charles River Media, Boston, MA. Available Free Online.

Strunk, J.R. & White, E.B., 1999. *The elements of style*. Longman, London. UK. RRP £1.

Electronic copies 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 £60.

Tuition fees (per year)

2016-17 full-time UK/EU: £9,000

2016-17 full-time International: £15,000

During your course

Materials and equipment list and costs

Essential

You should reserve a budget of at least £40 to purchase additional computer and electronics components, on an as-needed basis, each year.

Optional

Although not essential, having a laptop is highly recommended. Any machine capable of running current games at medium or high settings will be sufficient. Below is guidance from our studio technician, along with some example computer specifications, costing between £583 and £1571.

Computer Buying Advice

Firstly, a couple of caveats:

- 1 It is possible to develop games on most computer systems that have been made in the last ten years. Furthermore, high-spec game development workstations, electronic components and bread boards, and new technologies such as VR Headsets, are already available within the Game Studios on an as-needed basis for

your coursework tasks. Therefore there is no requirement for any student to bring an expensive computer system or specialist equipment with them when they join the course.

- 2 However, we anticipate that some students will want to purchase a new computer to see them through university and would appreciate some advice on this matter from a game developer's perspective.
- 3 Please note, that although every effort has been made to ensure the described computer systems are appropriately configured, these systems have not been tested by any member of the course team, and the University can accept no liability for the consequences of any actions taken on the basis of the information provided. If you are unsure about any aspect of your purchase, then please contact the retailer.

Now, on to the hardware...

Graphics card

Arguably, the most important hardware consideration for a game development system is the graphics card, especially if you intend to work with detailed 3D graphics that are rendered in real-time. For the sample computers listed below we have highlighted in *italics* the corresponding 'average G3D benchmark' scores as taken from <http://videocardbenchmark.net/> at the time of writing. This website considers "high end video cards" to have a score of 930 or above.

Laptop or desktop?

Laptops obviously have the advantage of being portable. You will typically get a higher spec system when spending an equivalent amount on a desktop, instead of a laptop. Desktops also tend to have better air-flow and cooling, so less stress is put on the components when running for long periods, which can in turn help to improve the life span of the system.

Hard drive

Depending on whether your preference is for fast load times or extra storage space for digital downloads, films, music, and so on, you might want to consider either a SSD hard drive (speed) or a larger 'regular' hard drive (storage). Some developers like to use an internal SSD hard drive for system speed and also have a larger external/portable hard drive for storing or transferring other documents.

Many larger gaming laptops have space for an SSD for storing the operating system and installed applications, and a larger hard drive for storing other files. This is also a common configuration for desktops, and generally offers the best compromise between speed and affordability.

Display size

When working with game development tools you will often be running multiple programs which each have numerous smaller views and panels. You will quickly realise the benefit of having a lot of 'screen estate'; the more pixels the better. With laptops this can represent a trade-off between portability and weight, versus usable display area. Whether you use a laptop or a desktop it's certainly worth considering a full HD display (1920 x 1080 resolution) and perhaps a secondary monitor also.

Example computers

We have tried to cover a range of options and budgets, but the list is by no means exhaustive; we advise that you shop around a little and pick something that you're comfortable with.

Basic-spec gaming PC

The Fusion 450 gaming PC: <http://www.pcspecialist.co.uk/view/Fusion-450-gaming-pc/>

Configured with the following add-ons:

- Graphics card: Nvidia Geforce GT 740.
- Keyboard: Logitech K120.
- Mouse: Logitech Optical USB Mouse.
- Monitor: AOC 21.5" E2270SWDN Monitor 1920x1080.

Videocard Benchmark: 1578.

Total Cost: £583.

High-spec gaming PC

The Vortex 1250 gaming PC: <http://www.pcspecialist.co.uk/view/Vortex-1250-gaming-pc/>

Configured with the following add-ons:

- Graphics card: Nvidia GTX 970.
- Monitor 1: IIYAMA E2273HDS 22".
- Monitor 2: IIYAMA E2273HDS 22".
- Keyboard & Mouse: CM Storm Devastator II Keyboard and Mouse.

Please note, at the time of writing, Nvidia have just announced the new GTX 1070 and 1080 cards which will be available in summer 2016, which may be worth waiting for.

Videocard Benchmark: 8663.

Total Cost: £1571.

Basic-Spec gaming laptop

PC Specialist Cosmos IV: <http://www.pcspecialist.co.uk/notebooks/cosmosIV-15/>

Configured with the following:

- Graphics card: Nvidia GT 940M.
- Processor: Intel Core i5 6300HQ.
- Memory: 8GB Kingston DDR3 1600mhz.
- Display: 15.6" full HD display.

Videocard Benchmark: 904.

Total Cost: £609.

High-spec gaming laptop

Asus G751JT gaming laptop: <http://www.ebuyer.com/735151-asus-g751jt-gaming-laptop-g751jt-t7250t>

Configured with the following:

- Graphics card: Nvidia GT 970M.
- Processor: Intel i7.
- Memory: 16GB ram.
- Hard drive: 128GB SSD + 1TB HDD.
- Display: 17.3" Full HD.

Videocard Benchmark: 3999.

Total Cost: £1059.99.

Finally, if you have not done so yet, please like our Facebook page and leave a message so that I can invite you to our private groups on Facebook, Slack, and GitHub. This will help us to get to know each other.

<https://www.facebook.com/BSc-Computing-for-Games-Falmouth-University-Games-Academy-946768382089089/>

Enrolment and Student Terms & Conditions

You will receive an email two weeks prior to the start of term with details of how to enrol online. All students must enrol online before the first day of term in order to be officially registered as a student of Falmouth University. If you plan to receive an undergraduate student loan, you must enrol to have your money released to you.

As part of your enrolment, you will be required 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, prior to enrolling online. They can be found on our Regulations, Policies and Procedures web page under 'Student Terms & Conditions' [here](#).

You will be emailed a more detailed course guide, timetable, and other important information closer to your first day of attendance. If you will be away, please ask someone else to check your emails regularly and to respond on your behalf.

If you would like to download and print a copy of this email, please go to www.falmouth.ac.uk/new-students/welcome-letters.

We know that there's a lot to do to prepare before the start of your course. If you have any questions at all, please don't hesitate to call our Admissions team for advice on 01326 213730 or email admissions@falmouth.ac.uk.

I look forward to seeing you all in September, and please do feel welcome to email me with any questions or queries that you may have.

Yours sincerely

Dr Michael James Scott

Senior Lecturer in Computing for Games

Falmouth University

Penryn Campus, Penryn, Cornwall TR10 9FE

01326 259081

michael.scott@falmouth.ac.uk

www.falmouth.ac.uk