T-Club Xtra

A Degree in Developmental Biology?

Developmental Biology...
... More than just making babies.

Now's the time you get to decide what degree subject to specialise in at Levels 3 and 4. Some of you won't have considered Developmental Biology, so this is your chance. What is Developmental Biology? It *is* partly about making babies of course... the study of human embryology, reproductive biology and anatomy. And with good reason, because the study of so-called birth defects, their causes and the development of new genetic and molecular therapies, is one of the greatest challenges facing medical science today. There is also a worldwide shortage of clinical embryologists that the Developmental Biology degrees are intended to address.

What many people don't realise is how much else we cover in the Dev Biol degrees. Stem Cells for example. We guarantee that you cannot throw a stone at the internet or a newspaper without hitting an article about the development and use of stem cell technology for treatment of human disease and injury. Stem Cell biology falls under the Developmental Biology umbrella and you get to learn about embryonic and adult stem cells, up to and including the most recent research into the production of human stem cells by cloning technology. There are quite a lot of BMS students out there with intentions to go into Medicine, and while Physiology or Anatomy are obvious (and appropriate!) options, Developmental Biology, with its emphasis on embryology, stem cells, regeneration and wound healing is a fantastic foundation for a future medical degree.

For example, most cancers have a stem cell origin and all cancers represent the inappropriate activation of embryological processes in the wrong place at the wrong time - cancer biology is developmental biology, and you can learn all about the causes and mechanisms of cancer. Several Dev Biol graduates are now working in cancer labs. Over the course of the Developmental Biology degree, you can also look at the evolution of the body plan.... Think for example about how humans evolved from a great ape ancestor, with our big brains and wimpy bodies, or more broadly the evolution of legs from fins when vertebrates crawled onto land – these are developmental biology problems and the study of evolution is intertwined with developmental biology.

http://www.newscientist.com/topic/human-evolution

The developmental biology degrees train you up in everything you need to know to progress to a career in science. If you are looking for a 'proper' science degree that will allow you to learn all the molecular and cell biology, anatomy and genetics you will ever need to work in the top labs and industries worldwide, with direct relevance to understanding human health, fertility and disease, Developmental Biology is a good option for you.

Doing a degree in Developmental Biology.

The degree comes in two flavours – BSc Biomedical Science (Developmental Biology) is open to all BSc BMS students who have done Anatomy A and B at Level 2; BSc Human Embryology and Developmental Biology is open to everyone else. Important to realise that there is NO difference between the degrees at Levels 3 and 4, and whatever option you take, once you graduate you will head out with a BSc degree as good as from any other University in the World. If this is what you want, tell your Advisor of Studies at the start of Level 3 and they will sign you up. The MSci with Industrial Placement is always an option too. As always, if you want to discuss the options, please contact the Degree Programme Coordinator, Martin Collinson (m.collinson@abdn.ac.uk).

The Teaching Team.

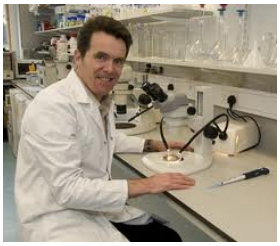
Who teaches Developmental Biology at Levels 3 and 4?

As with other degrees in the School of Medical Sciences, you will do Core Courses shared with other subjects, so to a large extent the people who teach you at levels 1 and 2 will be the same faces you meet at levels 3 and 4. On top of this, for your Dev Biol lectures, you will see these people – all front line research scientists with a passion for developmental biology, stem cells, human health, fertility and disease.

To date, 40% of our graduates have left with 1st class degrees and we are ready for the next batch!

Dr Martin Collinson (Degree Programme Coordinator)

Researches stem cell biology, cell migration, genetics of blindness and limb development, human fertility and birth defects.
Course Coordinator for DB3804 Development of Organ Systems and BM4010 Stem Cells and Regeneration.



Dr Neil Vargesson

Researches the physiology and genetics of limb development. Dr Vargesson was the first to discover how thalidomide causes limb defects by killing blood vessels in the developing limb.
Course Coordinator for DB3005 Principles of Developmental Biology.

Professor Lynda Erskine

Researches axon guidance in the visual system. Eye development.
Course Coordinator for AN3301 Human Embryology.
Council member of the British Society for Developmental Biology.

Dr Ann Rajnicek

Axon guidance, cell migration and spinal cord repair in vertebrates. Stem cell biology of flatworms that can regenerate 250 little worms if you chop an adult into 250 pieces.
Course Coordinator for PY4302 Developmental Neuroscience.

Who teaches Developmental Biology at Levels 3 and 4? Cont.

Professor Stefan Hoppler
Heart development and regeneration. Wnt signalling systems driving early embryogenesis.
Colorectal cancer. Cardiac stem cells.
Course Coordinator for DB3803 Patterning the Embryo.

Professor Cosimo De Bari
Stem Cells of the musculoskeletal system. Skeletal development and repair. Osteoarthritis. http://www.abdn.ac.uk/news/details-13883.php

Dr Jonathan Pettitt
Molecular and cell biology of epithelia, organogenesis and control of gene activity in nematode worms.
Course Coordinator for DB3501 Developmental Genetics and DB4002 Evolution and Development.

Professor Iain Gibson
Development of biomaterials to support regeneration of the skeletal system and CNS.

Professor Kevin Docherty
Stem cells of the pancreas. Pancreatic cell reprogramming for treatment of diabetes.

Professor Paul Fowler
Molecular biology of human fertility and infertility. Human reproduction.
Course Coordinator for DB3502 Reproductive Biology.

Professor Peter McCaffery
Role of Vitamin A / retinoids in brain development and behaviour. Includes the study of brain stem cells and the role of retinoid drugs in depressive illness.

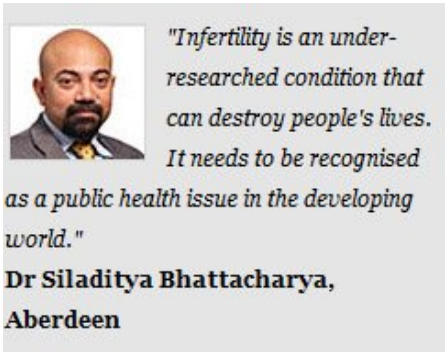
For more details of the Molecular Biology degrees, see T-Club 5 which can be accessed at http://www.abdn.ac.uk/staffpages/uploads/bms230/TClubDec12.pdf

ABERDEEN DEVELOPMENTAL BIOLOGISTS IN THE NEWS

Natalie Gibb (Stefan Hoppler's lab) is the new face of the British Heart Foundation's 'We hate heart disease' campaign on tv.

Neil Vargesson explains his latest thalidomide research to STV

Ann Rajnicek and her students won a prize for Public Engagement with their fluffy Planaria at the British Science Festival



Prof. Bhattacharya explains the work of the Aberdeen Fertility Clinic in *India Today*

Cosimo De Bari gets another grant for stem cell research - osteoarthritis this time.

Next time you see Martin Collinson, ask him how his miracle cure for cancer is coming along.