A close-up of a logo

Description automatically generated with low confidence



*BT3502 – Bio-business*

*Course Handbook 2023-2024*

*Undergraduate Medical Sciences*

*School of Medicine, Medical Sciences & Nutrition*

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Course Summary

Graduates with an understanding of the exploitation and commercialisation of scientific ideas are the next generation of people who will solve the great challenges of our time: from food security and clean energy to cures for dementia and cancer. The entrepreneur is responsible for making dreams into a reality – from starting up dynamic new companies that change the way industries operate, to simply ensuring that blue sky ideas reach their full potential and benefit humanity [you can “just” cure cancer if you like – there is no rule that says you have become rich and famous too, if that really doesn’t appeal!].

* “Chance favours the prepared mind” (Pasteur)
* “Luck is what happens when preparation meets opportunity” (Seneca)
* “The inventor turns money into innovation, but the [bio]entrepreneur turns [biomedical] innovation into money” (Unknown)

In the world of biomedicine and biotechnology, it is the individual who sees opportunities where others see challenges who drives innovation…and goes on to change the world

When *you* make that discovery or invention, will *you* be prepared to seize the opportunity and change the world?

In the world of biomedicine and biotechnology, it is the small, nimble, dynamic, entrepreneurial companies who drive innovation…and go on to change the world

When *you* go to work for that dynamic start-up company, will *you* have the right mindset and skills to ensure that the product reaches the patient or the customer?

This course will aim to bring out the “bioentrepreneur” in you and allow you to develop a “prepared mind” for when that stroke of genius comes your way.

Course Aims & Learning Outcomes

The main aim is to have fun and to enjoy the experience of “growing” as a group of creative, dynamic, free-thinking go-getters, who provide each other with support, encouragement and inspiration in a collective journey towards becoming a bioentrepreneur. There is no rule that says you cannot all get a top grade!

1. This year you will start to develop “your” idea and explore how you would spin out a company to develop it.
2. You will gain the confidence in presenting by delivering an individual (3 minute) elevator pitch on this idea and will then work in pairs to deliver a joint presentation on the general principles concerning how you would form a spin-out company.
3. This course will provide you with a flavour of the ways in which scientific and biomedical ideas and discoveries can be developed, commercialised and capitalised upon.
4. The course will allow you to understand the issues associated with the business of biomedical science.
5. This course will introduce you to the importance of intellectual property and how, for better or worse, it generally underpins the entire biomedical industry
6. This course will allow you to broaden your scientific horizons by gaining an awareness of the associated non-science issues, allowing for scientific discoveries to be viewed and appreciated in their proper context.

This course will challenge students to think about the nature of research when driven by commercial outcomes. Many of the future recruitment opportunities for students with medical science skills may involve roles in biobusiness development rather than exclusively research at the bench. Graduates with subject expertise, combined with an ability to see and understand the “bigger picture”, are in great demand for the dynamic small and medium companies that provide employment for over 60% of the UK workforce – as well as being valuable members of the multi-disciplinary teams in big pharma and biotech. This course hopes to enable our students to be at a competitive advantage when seeking such career opportunities when compared to those students that only have a traditional scientific background.

# 

Course Teaching Staff

Course Coordinator:

Dr Iain Greig [i.greig@abdn.ac.uk](mailto:i.greig@abdn.ac.uk)

Other Staff:

Dr Obinna Ubah, Elasmogen

Prof Andy Porter

Assessments & Examinations

Assessments are designed as to be more fun than a chore. Students are especially encouraged to collaborate concerning the elevator pitch, acting as a mutually-supporting community - you will be given opportunities to practise your pitch beforehand and to obtain feedback prior to submission.

* A short-answer piece on one unmet biomedical need (10%)
* One individual essay (30%)
* One individual three-minute elevator pitch video (20%)
* One small-group presentation (40%).

There are four assignments in the course but two of these are part of the same theme

**Assessments 1 and 3:** Students will prepare **a brief answer concerning an unmet biomedical need** and then **deliver a three-minute “elevator pitch” presentation that describes their biomedical invention** or product, and the resultant commercial opportunity. The emphasis within the presentation will be to excite and enthuse the audience and “sell” the commercial opportunity, rather than simply a delivery of the science. Students will submit this as a video (which will be marked) but will be encouraged to share ideas and to indulge in negotiation with other students to form pairs for delivering **Assessment 4** and indeed onwards to your 4th year virtual company – do you want to develop your own idea or can you bring something special to develop an idea from a classmate?

Training will be given throughout the course on the generation of ideas, the recognition of opportunities and how to capitalise on them, and training will be given throughout the course on how to “pitch” an idea. As well as encouraging the creativity and thought processes that underpin bioentrepreneurship, and allowing you to practise presenting in a fun environment, this assignment aims to deliver the nuclei of the ideas that – working first as pairs and then as larger teams - you will go on to develop into fully-fledged virtual companies during 4th year.

**Assessment 2: One 1500-word essay**. In this essay you will discuss the problems and potential solutions currently affecting the biomedical industry. You will be given lectures on this topic that will deal with one theme, but will be encouraged to broaden your discussion beyond this and explore and aspects that interest you.

**Assessment 4: working in groups of two or three, students will deliver a 6-minute presentation on how to spin out a company.** You will be given extensive guidance on what content could be included.

**Assessment Deadlines (**Hand-in via MyAberdeen)

**Assignment Hand-in Date**

1. Unmet biomedical need brief 23rd February 2023
2. Essay – industry challenges and solutions 3rd March 2023
3. Elevator Pitch (Video Submission) 17th March 2023
4. Presentation 29th March 2023

Course Reading List

* [**So you want to be a student entrepreneur?** | N**ature Biotechnology**](https://www.nature.com/articles/nbt.3778/#:~:text=%20So%20you%20want%20to%20be%20a%20student,from%20investors%20and%20organizations%20that%20they...%20More%20) **(click to access article!)**

# [**How to start a life science company**: a comprehensive guide for first-time entrepreneurs - University of Aberdeen (exlibrisgroup.com)](https://abdn.primo.exlibrisgroup.com/discovery/fulldisplay?docid=alma9918135635305941&context=L&vid=44ABE_INST:44ABE_VU1&lang=en&search_scope=MyInst_and_CI&adaptor=Local%20Search%20Engine&tab=Everything&query=any,contains,how%20to%20start%20a%20life%20science&offset=0) [click on link to access details]

* [**The Edison of Medicine (hbr.org)**](https://hbr.org/2017/03/the-edison-of-medicine) (click on link to access article)
* [**Biotechnology Entrepreneurship:** Craig Shimasaki](https://www.elsevier.com/books/biotechnology-entrepreneurship/shimasaki/978-0-12-815585-1) [click on link to see Amazon page]. An [older edition is available free online: What is Biotechnology Entrepreneurship? - ScienceDirect](https://www.sciencedirect.com/science/article/pii/B978012404730300004X) [click on link to access PDFs]. It is quite advanced but you may find it interesting to leaf through.
* Those who are really interested are encouraged to try this book – we will be making some use of it in 4th year and it is quite an eye-opener (the product doesn’t make an appearance until Step 7!) [Disciplined Entrepreneurship: 24 Steps to a Successful Startup eBook : Aulet, Bill: Amazon.co.uk: Books](https://www.amazon.co.uk/Disciplined-Entrepreneurship-Steps-Successful-Startup-ebook/dp/B00DQ97TWO/ref=tmm_kin_swatch_0?_encoding=UTF8&qid=1660823511&sr=8-1). Why should *this one* be more worthy than all the other takes? Well, they use it at MIT – so what? – well apparently the value of their spin-outs is equivalent to the GDP of the 9th largest economy in the world…just sayin’.

# Class Representatives

We value students’ opinions in regard to enhancing the quality of teaching and its delivery; therefore, in conjunction with the Students’ Association we support the Class Representative system.

In the School of Medicine, Medical Sciences & Nutrition we operate a system of course representatives, who are elected from within each course. Any student registered within a course that wishes to represent a given group of students can stand for election as a class representative. You will be informed when the elections for class representative will take place.

What will it involve?

It will involve speaking to your fellow students about the course you represent and, ideally, setting up some sot of social media outlet by which you can all communicate. This can include any comments that they may have. You will attend a Staff-Student Liaison Committee and you should represent the views and concerns of the students within this meeting. As a representative, you will also be able to contribute to the agenda. You will then feedback to the students after this meeting with any actions that are being taken.

It will also involve meeting with your counterparts in 2nd and 4th year to discuss ways in which the three year-groups can be mutually supporting and build a community of like-minded individuals, such that entrepreneurship is “in the air”. It is also expected that – if the class feels this would be beneficial – that you will arrange an online session in which class members can practice their elevator pitches and start to arrange themselves as teams in which each member will take on a different role (e.g. marketing, finance, technical) – both for the purposes of the 3rd presentation and for continuation into 4th year.

Finally, if required, it may involve identifying the requirement and an appropriate time, for setting up additional sessions with staff to cover any material you feel either has not been covered or warrants more in-depth coverage.

Training

Training for class representatives will be run by the Students Association. Training will take place within each half-session. For more information about the Class representative system visit [www.ausa.org.uk](http://www.ausa.org.uk) or email the VP Education & Employability [vped@abdn.ac.uk](mailto:vped@abdn.ac.uk) . Class representatives are also eligible to undertake the STAR (Students Taking Active Roles) Award with further information about this co-curricular award being available at: [www.abdn.ac.uk/careers](http://www.abdn.ac.uk/careers).

Problems with Coursework

If students have difficulties with any part of the course that they cannot cope with alone, they should please please please notify the course coordinator immediately. We are on your side and wish you every success, and aim to ensure that you reach your full potential. If the problem relates to the subject matter general, advice would be to contact the member of staff who is teaching that part of the course. Students with registered disabilities should contact the medical sciences office, ([medsci@abdn.ac.uk](mailto:medsci@abdn.ac.uk)) (based in the Polwarth Building, Foresterhill) to ensure that the appropriate facilities have been made available. Otherwise, you are strongly encouraged to contact any of the following as you see appropriate (just don’t suffer in silence):

* Course student representatives
* Course co-ordinator
* Convenor of the Medical Sciences Staff/Student Liaison Committee (Professor Gordon McEwan)
* Personal Tutor
* Medical Sciences Disabilities Co-ordinator (Dr Derryck Shewan)

All staff are based at Foresterhill and we strongly encourage the use of email or telephone the Medical Sciences Office. You may have a wasted journey travelling to Foresterhill only to find staff unavailable.

If a course has been completed and students are no longer on campus (i.e. work from second half session during the summer vacation), coursework will be kept until the end of Fresher’s Week, during the new academic year. After that point, unclaimed student work will be securely destroyed.

Lecture Synopsis - topics may be subject to change in response to class interests

**Prologue – The Mysterious Case of the One-Eyed Sheep (recording)**

**Dr Iain Greig**

One absurd (but true) story that covers so many issues and forms one half of the kinda-true story we will use to chart our complete commercial journey.

**Introduction to the course**

**Dr Iain Greig**

Introduction to the course and explanation of the assessments…and what it will take to succeed.

**So You Want to Be a Bioentrepreneur?**

**Dr Iain Greig**

Starting out on the road to becoming a bioentrepreneur

**Ideas and Inventions I and II**

**Dr Iain Greig**

Continuing down the road to becoming a bioentrepreneur. Some thoughts to help you come up with your idea and think about how it might be developed

**A Complete Commercial Journey I and II**

**Dr Iain Greig**

Two true stories combined with an ensemble of characters to create a start to finish story that illustrates the entire commercial process from initial discovery to…well, you’ll see.

**The Conflict Between Making Money and Saving Lives**

**Dr Iain Greig**

Wonder drugs that only the rich can afford? What is this dytospia and how do we change it? The controversies that even Hollywood would think too far-fetched to make a movie out of. How can an industry that is supposed to be saving lives behave in such a vile fashion? Well, maybe it has no choice…maybe.

**The Business of Making Medicines I and II**

**Dr Iain Greig**

Why is it so difficult and so complicated – can it really be done by a start-up company?

**Pitching and Presenting – joint with 2nd and 4th year**

**ABVentures**

We are delighted to again draw upon the expertise of [ABVentures](https://www.abventures-abdn.com/) who will deliver what promises to be a fantastic and unmissable session that will support your elevator pitch assessment. Come prepared to have fun but also to engage.

**Intellectual Property strategies**

**Dr Obinna Ubah and Dr Iain Greig**

From Taylor Swift to spanking machines, devices for finding love and headrests for urinals, to the Marlboro Man, Amazon and Apple, and through to Velcro, gene editing and even the smell of Play-Doh, intellectual property is not only fascinating, but it is everywhere.

**Biotech Spin-out Case Study I**

**Dr Obinna Ubah**

The Story of Elasmogen

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Practical/Lab/Tutorial Work

There is no practical work for this course.

University Policies

Students are asked to make themselves familiar with the information on key education policies, available [here](https://www.abdn.ac.uk/staffnet/teaching/key-education-policies-for-students-11809.php). These policies are relevant to all students and will be useful to you throughout your studies.  They contain important information and address issues such as what to do if you are absent, how to raise an appeal or a complaint and how the University will calculate your degree outcome.

These University wide education policies should be read in conjunction with this programme and/or course handbook, in which School specific policies are detailed. These policies are effective immediately, for the 2022/23 academic year. Further information can be found on the [University’s Infohub webpage](https://www.abdn.ac.uk/students/) or by visiting the Infohub.

The information included in the institutional area for 2022-23 includes the following:

* Assessment
* Feedback
* Academic Integrity
* Absence
* Student Monitoring/ Class Certificates
* Late Submission of Work
* Student Discipline
* The co-curriculum
* Student Learning Service (SLS)
* Professional and Academic Development
* Graduate Attributes
* Email Use
* MyAberdeen
* Appeals and Complaints

Where to Find the Following Information:

C6/C7- University of Aberdeen Homepage > Students > Academic Life > Monitoring and Progress > Student Monitoriung (C6 & C7)

https://www.abdn.ac.uk/students/academic-life/student-monitoring.php#panel5179

Absences- To report absences you should use the absence reporting system tool on Student Hub. Once you have successfully completed and sent the absence form you will get an email that your absence request has been accepted. The link below can be used to log onto the Student Hub Website and from there you can record any absences you may have.

[Log In - Student Hub (ahttps://www.abdn.ac.uk/studenthub/loginbdn.ac.uk)](https://www.abdn.ac.uk/studenthub/login)

Submitting an Appeal- University of Aberdeen Homepage > Students > Academic Life > Appeals and Complaints

https://www.abdn.ac.uk/students/academic-life/appeals-complaints-3380.php#panel2109

Academic Language & Skills support

For students whose first language is not English, the Language Centre offers support with Academic Writing and Communication Skills.

Academic Writing

* Responding to a writing task: Focusing on the question
* Organising your writing: within & between paragraphs
* Using sources to support your writing (including writing in your own words, and

citing & referencing conventions)

* Using academic language
* Critical Thinking
* Proofreading & Editing

Academic Communication Skills

* Developing skills for effective communication in an academic context
* Promoting critical thinking and evaluation
* Giving opportunities to develop confidence in communicating in English
* Developing interactive competence: contributing and responding to seminar discussions
* Useful vocabulary and expressions for taking part in discussions

More information and how to book a place can be found here

Medical Sciences Common Grading Scale

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade | Grade Point | % Mark | Category | Honours Class | Description |
| A1 | 22 | 90-100 | Excellent | First | • Outstanding ability and critical thought • Evidence of extensive reading • Superior understanding •The best performance that can be expected from a student at this level |
|  |
| A2 | 21 | 85-89 |  |
|  |
| A3 | 20 | 80-84 |  |
|  |
| A4 | 19 | 75-79 |  |
|  |
| A5 | 18 | 70-74 |  |
|  |
| B1 | 17 | 67-69 | Very Good | Upper Second | • Able to argue logically and organise answers well  • Shows a thorough grasp of concepts  • Good use of examples to illustrate points and justify arguments  • Evidence of reading and wide appreciation of subject |  |
|  |
| B2 | 16 | 64-66 |  |
|  |
| B3 | 15 | 60-63 |  |
|  |
| C1 | 14 | 57-59 | Good | Lower Second | • Repetition of lecture notes without evidence of further appreciation of subject • Lacking illustrative examples and originality • Basic level of understanding |  |
|  |
| C2 | 13 | 54-56 |  |
|  |
| C3 | 12 | 50-53 |  |
|  |
| D1 | 11 | 47-49 | Pass | Third | • Limited ability to argue logically and organise answers • Failure to develop or illustrate points • The minimum level of performance required for a student to be awarded a pass |  |
|  |
| D2 | 10 | 44-46 |  |
|  |
| D3 | 9 | 40-43 |  |
|  |
| E1 | 8 | 37-39 | Fail | Fail | • Weak presentation • Tendency to irrelevance • Some attempt at an answer but seriously lacking in content and/or ability to organise thoughts |  |
|  |
| E2 | 7 | 34-36 |  |
|  |
| E3 | 6 | 30-33 |  |
|  |
| F1 | 5 | 26-29 | Clear Fail | Not used for Honours | • Contains major errors or misconceptions • Poor presentation |  |
|  |
| F2 | 4 | 21-25 |  |
|  |
| F3 | 3 | 16-20 |  |
|  |
| G1 | 2 | 11-15 | Clear Fail/Abysmal |  | • Token or no submission |  |
|  |
| G2 | 1 | 1-10 |  |
|  |
| G3 | 0 | 0 |  |
|  |

BT3502 Course Timetable:  2023-2024

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date | Time | Room | Title | Session | Staff |
| Week 26 | | | | | |
| Mon 22 Jan | 13:00-14:00 | 1:032/033 | Course Introduction - | Lecture | Dr Iain Greig |
| Wed 24 Jan | 13:00-14:00 | 1:032/033 | So you (do) want to be a Bioentrepreneur? | Lecture | Dr Iain Greig |
| Week 27 | | | | | |
| Wed 31 Jan | 13:00-14:00 | 1:032/033 | Ideas and Inventions | Workshop | Dr Iain Greig |
| Week 28 | | | | | |
| Mon 5 Feb | 13:00-14:00 | 1:032/033 | Business Plan Workshop | Lecture | ABVentures  / Dr Iain Greig |
| Week 29 | | | | | |
| Mon 12 Feb | 13:00-14:00 | 1:032/033 | The Conflict Between Making Money and Saving Lives Pt I | Lecture | Dr Iain Greig |
| Wed 14 Feb | 13:00-14:00 | 1:032/033 | The Conflict Between Making Money and Saving Lives Pt II | Lecture | Dr Iain Greig |
| Week 30 | | | | | |
| Mon 19 Feb | 13:00-14:00 | 1:032/033 | The Business of Making Medicines I | Lecture | Dr Iain Greig |
| Wed 21 Feb | 13:00-14:00 | 1:032/033 | The Business of Making Medicines II | Lecture | Dr Iain Greig |
| Thu 22 Feb | 16:00-18:00 | FN3 | Pitching and Presenting | Workshop | ABVentures |
| Fri 23 Feb |  |  | Deadline Assignment 1:  Unmet medical need brief | Assessment |  |
| Week 31 | | | | | |
| Mon 26 Feb | 13:00-14:00 | 1:032/033 | Commercialisation | Lecture | Prof Andy Porter |
| Wed 28 Feb | 13:00-14:00 | 1:032/033 | IP and IP strategies | Lecture | Dr Obinna Ubah |
| Feb 1 Mar |  |  | Deadline Assignment 2: Essay | Assessment |  |
| Week 32 | | | | | |
| Mon 4 Mar | 11:00-12:00 | 1:032/033 | A Complete Commercial Journey Pt I | Lecture | Dr Iain Greig |
| Wed 6 Mar | 14:00-15:00 | 1:032/033 | A Complete Commercial Journey Pt II | Lecture | Dr Iain Greig |
| Week 33 | | | | | |
| Mon 11 Mar | 13:00-14:00 | 1:032/033 | Case Study Elasmogen | Lecture | Dr Obinna Ubah |
| Wed 13 Mar | 13:00-14:00 | 1:032/033 | Advanced Intellectual Property | Lecture | Dr Iain Greig |
| Fri 15 Mar |  |  | Deadline Assignment 3: Elevator Pitch | Assessment |  |
| Week 34 | | | | | |
|  | Recording | | Case Study 3 Contract Research Organisations | Lecture (R) | Dr Lewis Penny |
| Week 35 | | | | | |
| Wed 27 Mar | 13:00-15:00 | 1:032/033 | Assignment 4: Spin-out Presentations | Assessment |  |

Staff

* Dr Iain Greig Course Co-ordinator
* Professor Andy Porter
* Dr Obinna Ubah, Elasmogen
* Dr Lewis Penny, Scottish Biologics Facility

Campus Maps - Foresterhill



Polwarth Floor Plans

Diagram, schematic

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated