FIRST YEAR BIOLOGY

BO101, BO111, BO106

2011–2012

Welcome to First Year Biology. Regardless of whether this is your first time studying Biology, or you are returning to the subject as a successful Leaving Cert candidate, I am sure that you will enjoy the course, and learn a lot over the next year. Don't be worried if you are new to Biology, we will be starting from scratch and covering all the basics. However, the course will move quite quickly, so there is no time for complacency from any students but, if you attend your lectures and keep up with course reading, you should be fine —if you do find yourself falling behind, or are unable to keep up, please bring it to the attention of your academic advisor (who will be assigned to you at registration), the individual lecturer, or the course co-ordinator as soon as possible. We are very happy to help!

The First Year Biology BO101 & BO111 courses consist of the two modules, BO121 & BO120, each module being half the course: BO121 is taught in the first semester by *Biochemistry* and *Botany and Plant Science*; BO120 is taught in the second semester by *Zoology* and *Microbiology*. Both modules are examined in the summer written examinations. First year Biology BO106 students take the Biochemistry lectures of BO121 (semester 1), all of the lectures (Zoology and Microbiology) of BO120 (semester 2) and a special zoology practical component (semester 2). Lectures are examined in a summer written examination.

You have three lectures per week. It is very important that you attend these lectures. Evidence of participation in lectures, through the use of your clicker, will be recorded. There is a close correlation between students who miss lectures and those who fail their exams. Most lecturers also provide material on Blackboard, and relevant chapters in the textbook "Biology — 9th Edition" by Campbell and Reece (the recommended course text) should be read. Make sure you take your own notes in lectures as well, and copy any diagrams or notes when instructed to do so. The lecture courses are examined in the summer and the results of these exams count for 70% of the overall marks for the year.

You will also have practical biology classes. The first semester Biochemistry and Botany and Plant Science practicals are part of the BO121 module, and are assessed during one hour of Multiple Choice Questions at the conclusion of the practical course. The second semester Zoology and Microbiology practicals are part of the BO120 course, and are also assessed by Multiple Choice Questions at the end of semester. The practical components correspond to 30% of the overall marks for the year. Practical classes are compulsory, and attendance is taken each week. They are held in the First Year Biology Lab (SC200), Concourse. You will be required to purchase a practical manual for each semester at a cost of €20 per manual. The manuals can be obtained during the first practical session of each semester. You must bring your money with you. The BO106 practical component has a separate practical manual which will be sold for €5 during the first BO106 practical. BO106 practical books will be marked directly after the practicals and the marks obtained count for 30% of the overall marks for the year.

First year biology is split into two groups (1 and 2). Group 1 includes the following classes: Science (1BS1), Earth and Ocean Science (1EH1), Environmental Science (1EV1), and Marine Science (1MR1). Group 2 includes the following classes: Biomedical Science (1BO1), Biopharmaceutical Chemistry (1BPC1), Biotechnology (1BY1), Health and Safety Systems (1HF1), Mathematical Science, Foundation Year Medical Students (0MB3) and Engineering students taking BO106. Please pay attention to announcements in class, or on Blackboard, regarding changes to venues or alterations of groups.

Once again, if you have any problems or queries please contact your lecturer after your lecture or by email: biology@nuigalway.ie. Each lecturer will put aside 2 hours during the week they are lecturing, which they will advertise to you on Blackboard, and at which time they will be available in their office to give personal help if required. You must inform the College of Science if you are absent, for any reason, from University and miss lectures or practicals. Medical certificates should be provided to the college if relevant.

Best of luck throughout the year!

Professor Vincent O'Flaherty and your 1st Biology lecturer team

NATIONAL UNIVERSITY OF IRELAND, GALWAY
FIRST YEAR BIOLOGY COURSE 2011–2012

Lectures:	Time:	Venue:	
1. Tuesday	9.00–10.00 a.m.	Semester 1	Kirwan Lecture Theatre (Group 1) Cairnes Lecture Theatre (Group 2)
		Semester 2	O'Flaherty Lecture Theatre (Group 1) Cairnes Lecture Theatre (Group 2)
2. Tuesday	11.00–12.00 noon	Semester 1	O'Flaherty Lecture Theatre (Group 1) IT250 (Group 2)
		Semester 2	O'Flaherty Lecture Theatre (Group 1) AM250 O'hEocha Theatre (Group 2)
3. Thursday	11.00–12.00 noon	Semester 1	O'Flaherty Lecture Theatre (Group 1) Cairnes Theatre Theatre (Group 2)
		Semester 2	O'Flaherty Lecture Theatre (Group 1) AM250 O'hEocha Theatre (Group 2)

An additional lecture/tutorial slot on Friday morning at 9.00 am will be utilised on occasion, as required, during the year. Watch for Blackboard announcements and listen to announcements in class.

FIRST SEMESTER - Module BO121
11th September 2011 – 1st December 2012

Week:		**Subject Matter:**	**Discipline**
1	Thursday Sept 15	An Introduction to Biology	
2	(20th & 22nd Sept)	The chemistry of life; Proteins; Carbohydrates; Lipids	Biochemistry
3	(27th & 29th Sept)	Nucleic Acids; Eukaryotic cell structure; Cell membranes	Biochemistry
4	(4th & 6th Oct)	An introduction to metabolism; Enzymes; Cellular Respiration	Biochemistry
5	(11th & 13th Oct)	The cell cycle; Mitosis & Meiosis; Cellular communication	Biochemistry
6	(18th & 20th Oct)	From gene to protein; Regulation of eukaryotic gene expression; Genetic engineering/biotechnology.	Biochemistry
7	(25h & 27th Oct)	Introduction — what is Botany and Plant Science?; Diversity — fungi; Diversity (and evolution) - the green plant lineage.	Botany and Plant Science

8	(1st & 3rd Nov)	Diversity — green, red, brown algae and microalgae.	Botany and Plant Science
9	(8th & 10th Nov)	Plant habitats of the world. Environment - Irish habitats (bogs and woodlands);	Botany and Plant Science
10	(15th & 17th Nov)	Exploiting plants - plants and medicines; Energy, Photosynthesis (biofuels etc.); Biotechnology.	Botany and Plant Science
11	(22nd & 24th Nov)	Plants and the underworld — soil, minerals and interactions with microbes; Transport — water transport; Plants and the city - plants in and around Galway city, identification and survival.	Botany and Plant Science
12	(28th Nov & 1st Dec)	Living on the edge — Plant-animal interactions, including carnivorous plants; Climate change, fire, UV, etc.; Conservation.	Botany and Plant Science

SECOND SEMESTER - Module BO120
10th January – 29th March 2012

1	(10th & 12th Jan)	An introduction to animal diversity; Invertebrates; Vertebrates.	Zoology
2	(17th & 19th Jan)	An introduction to evolutionary and developmental biology; Palaeontology.	Zoology
3	(24th & 26th Jan)	Animal form and function 1 — circulation and the immune system.	Zoology
4	(31st Jan & 2nd Feb)	Animal form and function 2 — nutrition and excretion.	Zoology
5	(7th & 9th Feb)	Animal form and function 3 — the nervous and endocrine systems.	Zoology
6	(14th & 16th Feb)	Introduction to animal ecology; Population ecology; Community ecology.	Zoology
7	(21st & 23rd Feb)	Meet the microbes; The microbial planet	Microbiology
8	(28th Feb & 1st Mar)	How and why study microbes.	Microbiology
9	(6th Mar & 8th Mar)	Medical microbiology.	Microbiology
10	(13th & 15th Mar)	Microbes and the food we eat;	Microbiology
11	(20th & 22nd Mar)	Environmental microbiology.	Microbiology
12	(27 & 29 Mar)	Tutorials	ALL

FIRST YEAR BIOLOGY PRACTICALS

The practicals are held in the 1st Year Biology Laboratory, Concourse. Check the notice board for your lab number, and which session you are to attend. For each practical you must bring a hard cover notebook, dissection instruments and the practical manual. You must wear a lab coat.

First Semester

BIOCHEMISTRY (BO121) PRACTICALS 2011

Week beginning:	
28th September:	Introduction.
5th October:	Practical No. 1.
12th October:	Practical No. 2.
19th October:	Tutorial.

First Semester

BOTANY AND PLANT SCIENCE (BO121) PRACTICALS 2011

26th October:	Anthropogenic uses of plants
2nd November:	Floral structure and function
9th November:	Algae
16th November:	Chromosomes and DNA
23rd November:	Fungi
30th November:	Practical assessment/Tutorial

The Practical assessment exam is a combined Botany and Plant Science and Biochemistry Multiple Choice Question (MCQ) exam. Details will be announced at a later date.

Second Semester

ZOOLOGY (BO120) PRACTICALS 2012

Each student must have a lab coat, hard cover notebook, practical manual and dissection instruments.

Week beginning:

11th January:	Invertebrate anatomy 1 Sponges, Hydra, Fluke, Earthworm
18th January:	Invertebrate anatomy 2 Earthworm and Mussel Dissections
25rd January:	Invertebrate anatomy 3 Arthropods and Cockroach Dissection
1st February:	Vertebrate anatomy 1 Mammalian Skeleton
8th February:	Vertebrate anatomy 2 Histology
15th February:	BO106 Practicals

MICROBIOLOGY (BO120) PRACTICALS 2012

Each student must have a lab coat, hard cover notebook, practical manual and permanent marker.

Week beginning:

7th March:	Introduction & Practical 1 What's living on your phone?
14th March:	Practical 2 Nasal swab experiment
21th March:	Practical 3 Bacterial growth & culture (microscope work)
28th March:	Practical assessment/Tutorial

The Practical assessment exam is a combined Zoology and Microbiology Multiple Choice Question (MCQ) exam. Details will be announced at a later date.

NOTE: BO106 STUDENTS: Students taking this course should attend the Biochemistry, Zoology and Microbiology lectures and should only attend the practical sessions specifically provided for this course 15–17th February. More information will be circulated to you during the year.

FIRST YEAR BIOLOGY EXAMS

This section is an attempt to make clear what exactly is required to pass first year biology and what the consequences are of failing any particular component.

1. For all classes except Foundation Medicine (0MB3):

The First Class Honours mark is 70%, the Second Class Honours mark is 50%. The Pass mark is 40%.

Each module, BO121 and BO120, is marked separately. The mark for a module is calculated by adding the marks for your practical assessment (out of 15) and your written exam (out of 35) together to give a total out of 50.

The overall result for your first year Biology exam is calculated by adding the results for BO121 and BO120 together to give a mark/100.

Can I pass my first year biology exam if I fail one of the two modules?

Yes. If you fail one of the two modules you can still pass the course **provided** that you get **at least 30%** in the module you failed and also provided the overall first year biology result is 40%+.

E.g. Results for Tom: BO120 = 31; BO121 = 49. Overall average = 40. Tom passes first year biology.

But

Results for Jane: BO120 =26; BO121 = 54. Overall average = 40. Jane fails first year biology as she did not meet the minimum mark of 30% in one of her modules. Jane will need to re-sit BO120.

So – to pass first year biology you must:

1. **Pass both modules;**

   or

2. **Pass one module and achieve a 40%+ average mark, provided you score 30+% in both.**

Can I pass the First Science exam, even if I fail first year Biology or any other subject?

Yes. This is called the "Pass by Compensation" rule. This means that, if you fail Biology, but achieve a mark of 35%+, you may still be deemed to have passed First Science if you score double the difference in at least one of the other subjects (e.g. Chemistry, Physics, etc) and your average score for all subjects in the year is 40%+.

E.g. Results for Bob: Biology= 35 (BO121=30; BO120=40); Chemistry =50; Physics 40; Maths= 45. Overall year average 42%. Bob can pass first year by compensation, based on his Chemistry mark, and does not need to re-sit BO121.

You must re-sit all modules in which you score less than 40%, unless you pass the year by compensation.

If you need to re-sit a module, you must re-sit the written examination and the practical MCQ for that module.

2. For Foundation Medicine Students (OMB3)

The Pass mark is 50%.

Each module, BO121 and BO120, is marked separately. The mark for a module is calculated by adding the marks for your practical assessment (out of 15) and your written exam (out of 35) together to give a total out of 50.

The overall result for your first year Biology exam is calculated by adding the results for BO121 and BO120 together to give a mark/100.

FURTHER INFORMATION

General queries to: *Biology@nuigalway.ie*

Queries on academic issues should be addressed to the individual lecturers after the lectures, during advertised office hours or by appointment.

Blackboard: To access the Blackboard website, type in https://nuigalway.blackboard.com/and login using your username and password as provided by Computer Services. You will be enrolled on the course, which will be identified by the code BO101, BO111 or BO106. If you have difficulty enrolling, please contact user support in Computer Services.