

Biological & Biomedical Sciences



Natural Sciences Tripos Part II Biological and Biomedical Sciences



The Course



Major and Minor Subjects



Dissertation and Exams



Student Support



Student Feedback

Front Cover Image: Courtesy of Richard Tyser. A mouse embryo around halfway through gestation. The white shows the vascular system forming in the embryo and the red shows the muscle.

The Course



Introduction

The aim of Part II Biological and Biomedical Sciences (BBS) is to provide a rigorous and intellectually challenging biological Part II subject, for both third year Natural Scientists and Medical and Veterinary Science students. NST Part II BBS allows students to maintain some flexibility in their study at Part II, allowing them to combine courses from more than one single subject biological Part II and a choice of non-biology subjects. It requires the submission of a dissertation.

Each candidate must take a Major and a Minor subject and a dissertation. The dissertation topic may be proposed by the candidate or chosen from one offered by the relevant Department and should be of up to 6,000 words, on a subject associated with either the Major or Minor subject. The dissertation must be prepared in accordance with the guidelines issued by the Faculty Board.



Courtesy of Katharina Schiessl. A legume plant that has been infected by soil bacteria.



Course Aims and Learning Outcomes

AIMS

The course aims to:

- provide an education of the highest calibre in biosciences producing graduates of the quality sought by the professions, the public service, and industry
- to provide an intellectually stimulating and challenging learning environment in which students have the opportunity to develop their skills and enthusiasms to the best of their potential
- to provide flexibility in curriculum by allowing the theory papers of a single subject Part II in approved biology-related subjects to be combined with a paper from an approved list of other biology or non- biology subjects
- to provide training in scientific principles and evaluation of research and to encourage science-writing skills through preparation of a dissertation
- to contribute to the national needs for practitioners and leaders in the sciences, medical and veterinary professions

LEARNING OUTCOMES

At the end of the course, students should have:

- an in depth understanding of the core principles, and their experimental basis, of a chosen major subject
- additional advanced understanding in a chosen minor subject
- depending on subject choices, theoretical knowledge of disciplines and techniques useful to scientific research
- experience of independent work, including study of research papers and critical analysis
- developed skills in analysis of arguments and data
- communication skills used for reasoned argument in discussing scientific investigations and texts



Course Management

FOR COURSE ENQUIRIES
EMAIL:

FACBIOL@ADMIN.CAM.AC.UK



NST Part II BBS is managed by the Biological Sciences Committee for the Faculty of Biology, with the overall Course Coordinator being a member of one of the Faculty's departments.

The administration of the course is undertaken by the Student Liaison Administrator in the Faculty Board Office, which is located at 17 Mill Lane. If you have any administrative problems with the course, which cannot be solved within a particular department or by your College Director of Studies, please contact the Faculty Office.

In addition, Departmental Course Organisers are responsible for the detailed arrangements of the individual Major and Minor Subjects. A current list of Departmental Course Organisers, together with their contact details, are available on the Part II BBS website.

You should contact the Course Organiser for the Major/Minor Subject if you need any information about the arrangements of lectures, dissertations or examinations.

Departments will provide the same infrastructure for student support, departmental access, use of facilities, and supervision arrangements as they provide for their single subject students.



Course Structure

01

MAJOR SUBJECT

A 'Major' Subject, which will typically draw on the core teaching of a single Part II subject, but may draw on modules offered by more than one department. The 'Major' Subject will involve a minimum of 96 contact hours (excluding supervisions)

MINOR SUBJECT

A 'Minor' Subject, normally provided by another department, which will involve 24-30 contact hours (excluding supervisions)

02

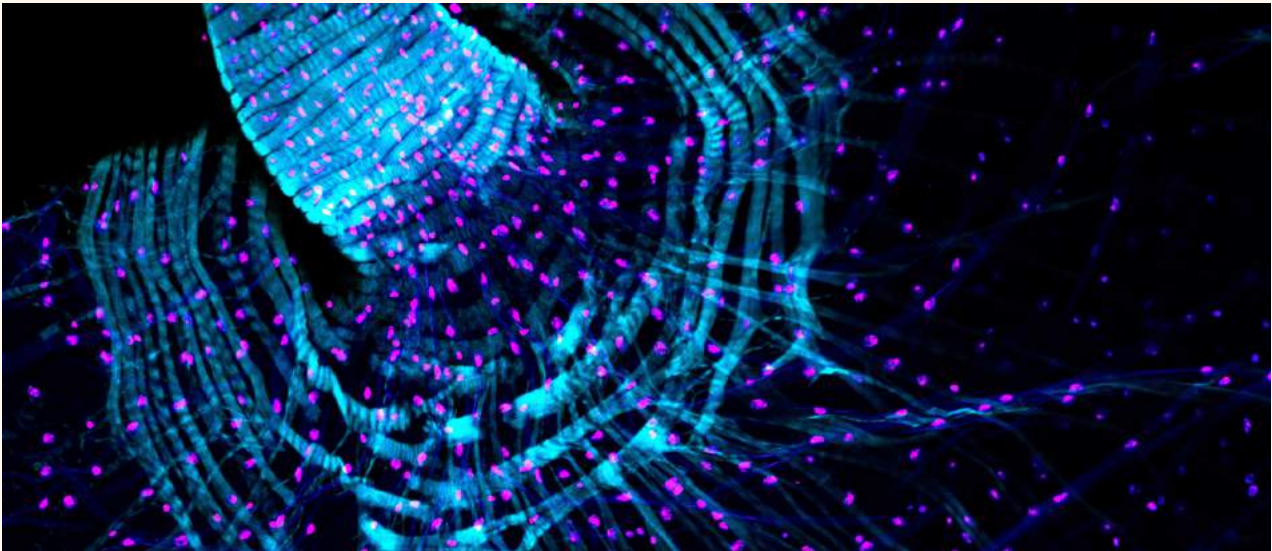
03

DISSERTATION

A dissertation of up to 6,000 words taken in either your Major or Minor subject.



Registration Procedure



Courtesy of Amrita Mukherjee. This image shows part of the *Drosophila* digestive system called the crop, which is analogous to the human stomach. The cyan colour shows muscle fibres that cover the crop, which are required for contraction. Cell nuclei are coloured magenta.

HOW TO APPLY



Registration for NST Part II BBS is through the Part II Allocations Procedure as detailed on the webpage at:

<https://www.natsci.tripos.cam.ac.uk/students/third/ii-subject-allocation>.

You can indicate your preferred choice of major subject directly through an on-line form, specifying that you wish to take the NST Part II BBS (dissertation) route.

Some subjects have requirements or recommendations for previous subjects taken. These can be checked at:

www.natsci.tripos.cam.ac.uk/subject-information/part2

THE DEADLINE FOR SUBMISSION OF CHOICES THROUGH THE ONLINE FORM IS:

17 MAY 2024

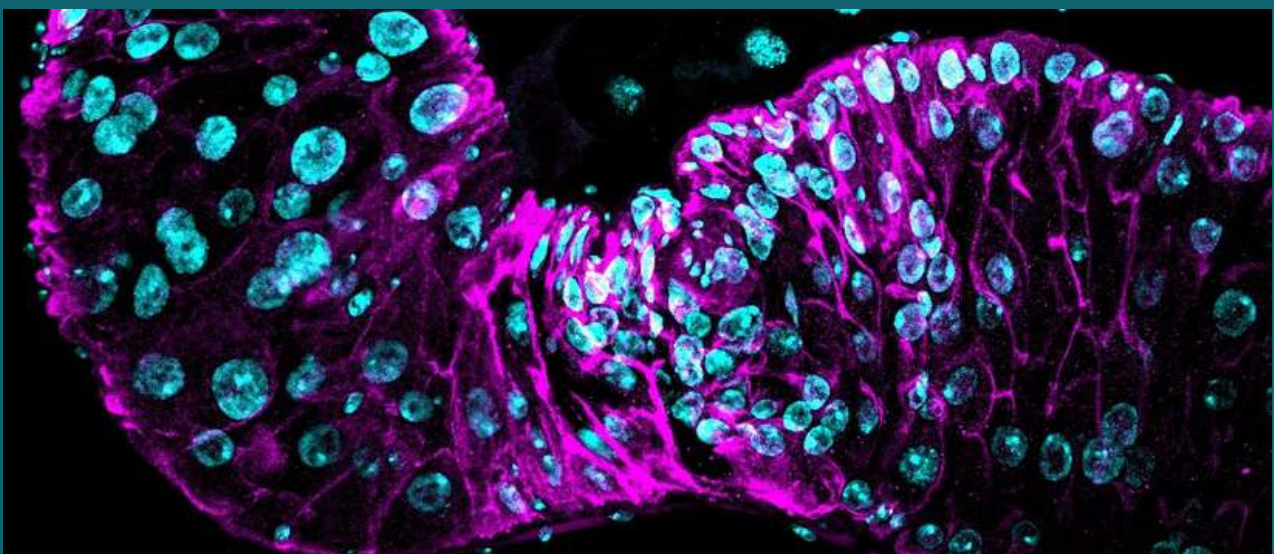
Major and Minor Subjects



The Major Subjects (Papers 402 - 430) and the Minor Subjects (Papers 104 - 154) available in 2024-25 are shown on the following tables. The permissible combinations of Major Subjects and Minor Subjects are also shown. Please note that subjects and combinations offered are subject to change - these will be detailed in the Reporter. A more detailed table of compatible subject combinations is available on the Faculty of Biology website:

www.biology.cam.ac.uk/undergrads/nst/bbs/subject-combinations

You will need to consult the Department for detailed timetables when they are published.



Courtesy of Amrita Mukherjee. This image shows part of a Drosophila midgut that has been fed a toxin. The cyan colour shows cell nuclei, and the magenta colour labels the expression of a cell death marker, showing the cell death is widespread.



Major Subjects

PAPER	MAJOR SUBJECT	PERMISSIBLE MINOR SUBJECTS	EXAMINATION REQUIREMENTS
402	<u>Pathology</u>	107, 108, 114, 128, 129 and 137	Four written papers of three hours each.
408	<u>Pharmacology</u> <i>Maximum 15 candidates</i>	107, 108, 109, 111, 113, 114, 120, 124, 126, 127, 128, 129, 132, 137, 142, 143, 144, 146, 147, 148, 149, 151 and 154	Four written papers: three papers of three hours (papers 1 – 3) and one paper of three hours and 15 minutes (paper 4).
409	<u>Psychology</u> <i>Maximum 25 candidates</i>	108, and 124 - <i>Students may choose additional Minor Subjects that do not have lecture clashes with the Psychology modules chosen – please consult the relevant lecture timetables.</i>	Four written papers of three hours each.
411	<u>Biochemistry</u> <i>Maximum 7 candidates</i>	107, 108, 114, 128, 129 and 137 – <i>Students may choose additional Minor Subjects depending on their module choice in Lent Term. Students may choose Minor Subjects that do not have clashes with the Biochemistry modules chosen – please consult the relevant lecture timetables.</i>	Five written papers of three hours each.



Major Subjects

PAPER	MAJOR SUBJECT	PERMISSIBLE MINOR SUBJECTS	EXAMINATION REQUIREMENTS
412	<u>Plant Sciences</u> (Choose two from <u>PLM1, PLM2, PLM3</u> and <u>Zoology ZM2</u> , and two from <u>PLL1, PLL2, PLL3</u> and <u>Zoology ZL3, ZL4</u> and <u>ZL5</u> and <u>Bioinformatics</u>).	126, 134, and 137 – <i>Students may choose Minor Subjects that do not have lecture clashes with the Plant Sciences modules chosen – please consult the relevant lecture timetables.</i>	Four written papers of three hours each.
414	<u>Genetics</u> <i>Maximum 10 candidates</i>	107, 108, 113, 128, 144, 145, 147, and 151 – <i>Students to choose a minor subject that does not have lecture clashes with the Genetics modules – please consult the relevant lecture timetables.</i>	Four written papers of three hours each.
415	<u>Physiology, Development and Neuroscience</u> <i>Maximum 25 candidates</i>	<i>A fifth PDN module can be taken as a Minor Subject. Students may choose Minor Subjects that do not have lecture clashes with the PDN modules chosen – please consult the relevant lecture timetables.</i>	Four written papers of three hours each.



Major Subjects

PAPER	MAJOR SUBJECT	PERMISSIBLE MINOR SUBJECTS	EXAMINATION REQUIREMENTS
427	Zoology (Choose two from <u>Zoology modules ZM1, ZM2, ZM5, ZM6, ZM7, ZM9 and ZM10, Plant Sciences M3, N3 (PDN), PS3 (Psychology), and two from ZL1 to ZL7, N6 (PDN), PS2 (Psychology), and Bioinformatics</u>).	126, and 149 – <i>A fifth Zoology module can be taken as a Minor Subject. Students may choose Minor Subjects that do not have lecture clashes with the Zoology modules chosen – please consult the relevant lecture timetables.</i>	Four written papers of three hours each.
429	Human Evolution, Ecology and Behaviour <u>Maximum 10+ candidates</u>	108, 137, 143, 147, 149, 152– <i>Students may choose Minor Subjects that do not have lecture clashes with the Human Evolution modules chosen – please consult the relevant lecture timetables.</i>	Two core papers to be assessed by a three-hour written examination, plus the examination requirements of two optional papers.
430	History and Philosophy of Science and Medicine <u>Maximum 12 candidates</u>	105, 108, 109, 120, 121, 126, 134, 135, 141, 143, 145, 146, 148, 149, 152 and 153.	Four written papers of three hours each.



Further Major Subject information is available on the BBS website:

www.biology.cam.ac.uk/undergrads/nst/bbs/MajorSubjects

Detailed information about permissible subject combinations is also available online:

www.biology.cam.ac.uk/undergrads/nst/bbs/subject-combinations



Minor Subjects

PAPER	MINOR SUBJECT
104	Human Evolution (Arch Paper B3) - Max 10+ candidates
105	Human Ecology and Behaviour (Arch Paper B2) - Max 10+ candidates
107	Philosophy & Ethics of Medicine (HPS) - Max 20 candidates
108	Health, Medicine, and Society (HSPS Paper Soc 13) - Please note that this papers is capped. Places will be confirmed by the Sociology department on the 16 September. Students are advised to choose an alternative paper to avoid disappointment
109	The Family (PBS 8) - Max 10 candidates
111	Higher Order Brain Function and Dysfunction (PDN N6) - Max 15 candidates
113	Early Medicine (HPS) - Max 12 candidates
114	Modern Medicine & Biomedical Sciences (HPS) - Max 12 candidates
120	Genetics of Health & Disease (Genetics Module 3) - Max 10 candidates
121	Evolutionary Genetics & Adaptation (Genetics Module 4, Zoology ZL5) - Max 10 candidates
124	Advanced Topics in Social and Applied Psychology (PBS 7) - Max 7 candidates



Minor Subjects

PAPER	MINOR SUBJECT
126	Topics in Music & Science: Exploring Music Psychology - Max 12 candidates
127	Conservation Science (Zoology ZM2)
128	Bioinformatics - Max 46 candidates
129	Clinical Applied Research (PHPC) - Minimum 9 candidates. Max 12 candidates.
132	Evolution and Comparative Anatomy of Mammals (Zoology ZL1)
134	From Genome to Proteome (Biochemistry) - Max 10 candidates
135	Cell Cycle, Signalling and Cancer (Biochemistry) - Max 10 candidates
137	Surgical and Radiological Anatomy (PDN) - Max 30 candidates
138	Developmental Neurobiology (PDN N1) - Max 5 candidates
141	Cellular Physiology (PDN P1) - Max 5 candidates
142	Development and Stem Cells (PDN P2) - Max 5 candidates



Minor Subjects

PAPER	MINOR SUBJECT
143	Systems and Clinical Physiology (PDN P8) - Max 5 candidates
144	Plant Signalling Networks in Growth and Development (PI Sci PLM1) - Max 3 candidates
145	Microbes: Evolution, Genomes and Lifestyle (PI Sci PLM2) - Max 3 candidates
146	Evolution and Ecosystems Dynamics (PI Sci PLM3) - Max 3 candidates
147	Plant Genomes and Synthetic Biology (PI Sci PLL1) - Max 3 candidates
148	Responses to Global Change (PI Sci PLL2) - Max 3 candidates
149	Exploiting Plant Metabolism (PI Sci PLL3) - Max 3 candidates
151	Comparative Human Biology (Arch Paper B4) - Max 10+ candidates
152	Neuroscience: Circuits and Systems (PDN N3) - Max 5 candidates
153	Cellular and Molecular Neuroscience (PDN N4) - Max 5 candidates
154	Applied Ecology (Zoology ZL4)



Minor Subjects

ABBREVIATIONS

ARCH Archaeology

HPS History and Philosophy of Science

PBS Psychology and Behavioural Sciences

PDN Physiology, Development and Neuroscience

PHPC Public Health and Primary Care

Pl Sci Plant Sciences



Further Minor Subject information is available on the BBS website:

www.biology.cam.ac.uk/undergrads/nst/bbs/Minors

Detailed information about permissible subject combinations is also available online:

www.biology.cam.ac.uk/undergrads/nst/bbs/subject-combinations



Course Descriptions

Detailed course descriptions are available on the web and in course handbooks: the following brief outline gives a basic introduction to course content for the Major Subjects.

PATHOLOGY

The Department of Pathology offers one Major Subject (maximum of 25 BBS places).

Paper 402 Pathology

The course provides students with the knowledge of the mechanisms that regulate cells and tissues at the molecular, cellular and genetic level, and how these are disrupted in disease processes. Students will take four one-term modules: two Michaelmas Term (MT) modules from A-D, and two Lent Term (LT) modules from E-H:

Michaelmas Term modules

- (A) MT Genetics of Disease
- (B) MT Epidemiology and Control of Infectious Disease
- (C) MT Host-Pathogen Interactions
- (D) MT Immunology I*

Lent Term modules

- (E) LT Cancer Biology
- (F) LT Infectious disease: a one-health perspective
- (G) LT Virology
- (H) LT Immunology II*

** Immunology I & II must be taken together*

For further information on the current course structure see:

www.path.cam.ac.uk/undergraduate/third_year/NST-PartII-BBS



Course Descriptions

PHARMACOLOGY

The Department of Pharmacology offers one Major Subject.

Paper 408 Pharmacology

The course provides students with the concepts and knowledge required to understand developments in pharmacology and drug discovery. Students follow the same lectures as for the single subject. In addition, there is a series of methods and skills lectures and workshops. The course typically covers:

- Drug Discovery
- Cancer
- Cardiovascular diseases
- Neurotransmission and chronic pain
- Receptors and ion channels
- Cellular signalling
- Controlling the cell proteome
- Infectious Diseases

BBS students will give a short talk on the topic of their dissertation to the Department at the end of Lent Term.

For further information see:

www.phar.cam.ac.uk/undergrads/bbs



Course Descriptions

PSYCHOLOGY

The Department of Psychology offers one Major Subject.

Paper 409 Psychology

Students take the same lectures and exam papers as for the single subject. The course provides students with the conceptual tools and background knowledge required to understand developments in the sciences of mind and brain, including appreciation of the range of behavioural and physiological sources of evidence and multiple levels of theoretical analysis.

Students can choose between one of the two following options:

Option A

Paper 1: Methods of Inquiry

Paper 2: Cognitive and Experimental Psychology

Paper 3: Behavioural and Cognitive Neuroscience

Paper 4: Social Psychology, Developmental Psychology and Individual Differences.

Choose one module from PBS 6, PBS 7 and PBS 8.

Papers 2, 3 and 4 contain several 8-lecture courses, with all lectures taking place in the Michaelmas and Lent terms only.

Information on the Psychology course continues on the following page



Course Descriptions

PSYCHOLOGY CONTINUED

Option B

Option B is currently being restructured for the 2024-25 academic year, the planned course modifications are subject to approval by ASEC. In the proposed new structure, students will take the following papers:

Paper 1: Methods of Inquiry

Paper 2: PS2 Memory

Paper 3: PS3 Brain Mechanisms of Emotional Regulation and Motivation

Paper 4: Choose one module in psychology, neuroscience and behaviour offered through PDN or Zoology

Students must have taken MVST Part IB or NST Part IB Experimental Psychology to take this Major Subject.

For further information on the current course structure see:

www.psychol.cam.ac.uk/undergrads/ug/nst-ii/info



Course Descriptions

BIOCHEMISTRY

The Department of Biochemistry offers one Major Subject.

Paper 411 Biochemistry

The course is grouped into four 24 lecture modules, one of which has a branched structure to provide internal choice. In addition there is a series of methods and skills sessions and students are expected to attend the Departmental Research Seminar Series.

Module A: Structural and Chemical Biology

Module B: From Genome to Proteome

Module C: Stem - The Dynamic Cell

plus either:

Branch 1 - Bioenergy OR

Branch 2 - Molecular Microbiology of Infectious Disease

Module D: Cell Cycle, Signalling and Cancer

Essential Methods and Skills: These feature key methods such as bioinformatics. Also included are data handling classes using past examination papers as core material to study approaches to data analysis and interpretation. Teaching of transferable laboratory and communication skills (such as graphic illustration, record keeping, data analysis, database searching and essay and report writing) are embedded in the course. BBS students will take part in bioinformatics sessions and group supervisions where they will give presentations on their dissertation, present analysis of data and scientific papers and take part in Journal Club sessions, so developing oral presentation skills and skills in questioning others on their presentations and developing a critical approach to scientific literature.

For more information see:

www.bioc.cam.ac.uk/teaching/third-year/biochemistry/part-ii-biochemistry

www.biology.cam.ac.uk/undergrads/nst/bbs



Course Descriptions

PLANT SCIENCES

The Department of Plant Sciences offers one Major Subject.

Paper 412 Plant Sciences

Two modules are chosen in Michaelmas Term and two modules are chosen in Lent Term.

Michaelmas Modules

- PLM1: Plant Signalling Networks in Growth and Development
- PLM2: Microbes: Evolution, Genomes and Lifestyle
- PLM3: Evolution and Ecosystem Dynamics
- ZM2: Conservation Science [*Borrowed from Zoology*]

Lent Modules

- PLL1: Plant Genomes and Synthetic Biology
- PLL2: Responses to Global Change
- PLL3: Exploiting Plant Metabolism
- ZL3: Evolution and Behaviour: Populations and Societies
- ZL4: Applied Ecology
- ZL5: Evolutionary Genetics and Adaptation [*Borrowed from Zoology*]
- BBS Minor 128: Bioinformatics

A module taken as part of a Major Subject cannot be taken as a Minor Subject.

For further information see:

www.plantsci.cam.ac.uk/teaching/plants

www.biology.cam.ac.uk/undergrads/nst/bbs



Course Descriptions

GENETICS

The Department of Genetics offers one Major Subject.

Paper 414 Genetics

Students take four of the five modules offered for the single subject (two each term).

Michaelmas Modules (2/2)

Module 1: Genomes

Module 2: Early Development & Patterning: Genetic & Cellular Mechanisms

Lent Modules (2/3)

Module 3: Genetics of Health & Disease

Module 4: Evolutionary Genetics and Adaptation

Module 5: Mathematical Genetics

Several of modules offered by Genetics can be taken as a minor subject, including M3 (Genetics of Health & Disease), M4 (Evolutionary Genetics & Adaptation) and Bioinformatics (128). A module taken as part of a major subject cannot be taken as a minor subject.

BBS students will give a short oral presentation on their BBS dissertation subject to the rest of the Part II class at the end of the Lent Term.

For further information see:

www.gen.cam.ac.uk/undergraduate/nst2-genetics-overview

www.biology.cam.ac.uk/undergrads/nst/bbs



Course Descriptions

PHYSIOLOGY, DEVELOPMENT AND NEUROSCIENCE

The Department of PDN offers one Major Subject.

Paper 415 Physiology, Development and Neuroscience

Choose any four modules from:

Michaelmas Modules

- N1: Developmental Neurobiology
- N2: Experimental Tools for the Neuroscientist and how they Shape Scientific Discovery
- N3: Neuroscience: Circuits and Systems
- N4: Cellular and Molecular and Neuroscience
- P1: Cellular Physiology
- P3: Fetal & Placental Physiology
- P4: Early Development & Patterning: Genetic and Cellular Mechanisms
- P9: Cell Assembly and Interactions

Lent Modules

- N6: Higher Order Brain Function and Dysfunction
- N9: Modulation, Plasticity, and Behaviour
- P2: Development and Stem Cells
- P5: Bioinformatics
- P6: Development: Cell Differentiation & Organogenesis
- P7: Pathophysiology of Cancer
- P8: Systems and Clinical Physiology

Information on the PDN course continues on the following page



Course Descriptions

PHYSIOLOGY, DEVELOPMENT AND NEUROSCIENCE CONTINUED

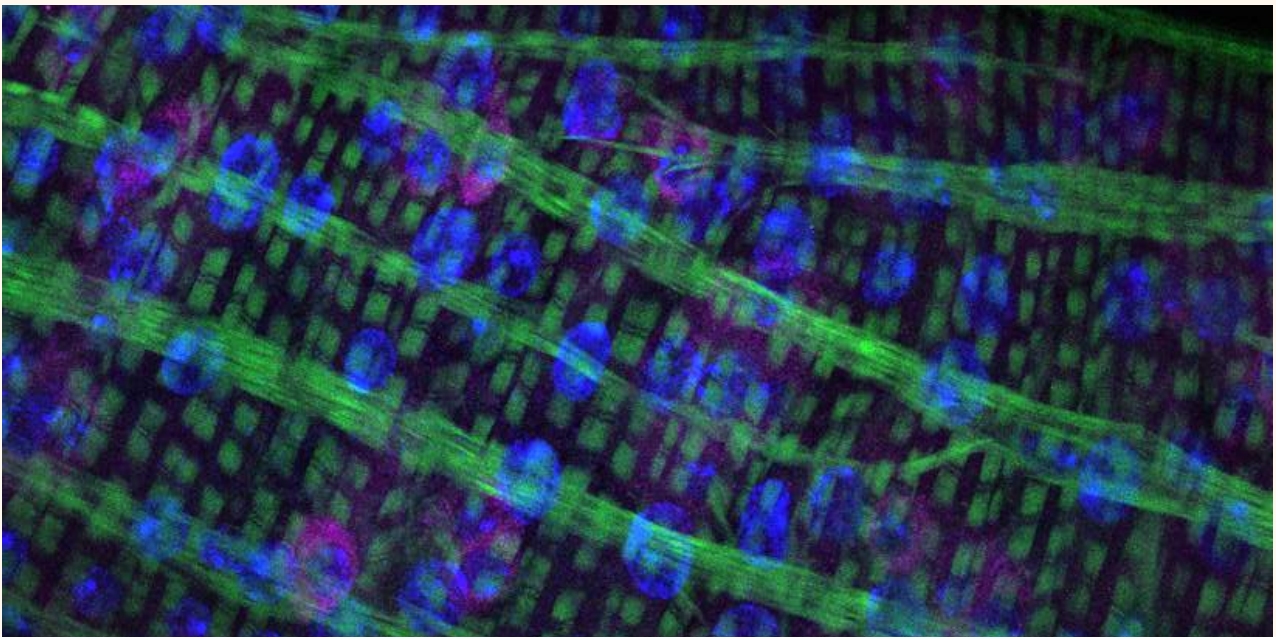
Alternatively, choose at least two N and/or P modules, and up to two more either from the shared neuroscience modules offered by both Psychology and Zoology, (subject to availability). If oversubscribed, shared neuroscience places are offered at random.

Students must specify to the department which 4 modules they intend to take via the PDN application form. A limited number of module combinations are not possible. See the PDN Course Brochure for details.

A module taken as part of a Major Subject cannot be taken as a Minor Subject.

For further information see:

www.pdn.cam.ac.uk/undergraduate-1/part-ii-courses



Courtesy of Yizhou Yu. This image shows the fruit fly gut after exposure to toxic compounds. Specific gut cells turned 'pink', which is an indicator of cell stress. Cell nuclei are shown in blue, and filaments in the cell cytoskeleton known as actin, as shown in green.



Course Descriptions

ZOOLOGY

The Department of Zoology offers a single Major Subject made up of 6 modules offered in the single subject, and 14 shared/borrowed modules offered by Plant Sciences, Genetics, PDN, Biochemistry and Psychology. Two modules are chosen in Michaelmas Term and two modules are chosen in Lent Term.

Paper 427 Zoology

Michaelmas Modules

- ZM1: Vertebrate Evolution
- ZM2: Conservation Science
- ZM5: Evolution and Behaviour: Genes and Individuals
- ZM6: Cell Assembly and Interactions [*Shared with PDN*]
- ZM7: From Genome to Proteome [*Borrowed from Biochemistry*]
- ZM9: Developmental Neurobiology [*Shared with PDN*]
- ZM10: Early Development & Patterning: Genetics & Cellular Mechanisms [*Shared with Genetics and PDN*]
- PLM3: Evolution and Ecosystem Dynamics [*Borrowed from Plant Sciences*]
- N3: Neuroscience: Circuits and Systems [*Borrowed from PDN*]
- PS3: Brain Mechanisms of Emotional Regulation and Motivation [*Borrowed from Psychology*]

Lent Modules

- ZL1: Evolution and Comparative Anatomy of Mammals
- ZL2: Responses to Global Change [*Borrowed from Plant Sciences*]
- ZL3: Evolution and Behaviour: Populations and Societies
- ZL4: Applied Ecology
- ZL5: Evolutionary Genetics and Adaptation [*Shared with Genetics*]

Information on the Zoology course continues on the following page



Course Descriptions

ZOOLOGY CONTINUED

Lent Modules [Continued]

- ZL6: Development: Cell Differentiation and Organogenesis [*Shared with PDN*]
- ZL7: Cell Cycle, Signalling and Cancer [*Borrowed from Biochemistry*]
- 102: Bioinformatics [*Borrowed from Genetics*]
- N6: Higher Order Brain Function and Dysfunction [*Borrowed from PDN*]
- PS2: Memory [*Borrowed from Psychology*]

A module taken as part of a Major Subject cannot be taken as a Minor Subject. A limited number of module combinations are not possible. Please check the Zoology Part II Handbook and contact teaching@zoo.cam.ac.uk for more information.

For further information see:

<https://www.zoo.cam.ac.uk/study/NST-II-Zoology>





Course Descriptions

BIOLOGICAL ANTHROPOLOGY

The Department of Archaeology offers one Major Subject:

Paper 429 Human Evolution, Ecology and Behaviour

Students choose two papers from the following list:

B2: Human Ecology and Behaviour

B3: Human Evolution

B4: Comparative Human Biology

In addition, students choose further two papers from the following list, each of which are one term in duration:

B11: Quantitative Modelling in Archaeology and Biological Anthropology.

B12: Human Palaeobiology.

B13: Evolutionary Medicine.

B14: The Co-Evolution of Humans & Stone Age Culture.

B17: Our Extended Family: Primate Biology and Behaviour.

BBS students will give a talk on the topic of their dissertation, followed by questions, during Lent term.

For further information see:

www.bioanth.cam.ac.uk



Course Descriptions

HISTORY AND PHILOSOPHY OF SCIENCE AND MEDICINE

The Department of History and Philosophy of Science offers one Major Subject:

Paper 430 History and Philosophy of Science and Medicine

Students take the following four papers:

Early Medicine

Modern Medicine and Biomedical Sciences

Philosophy of Science and Medicine

Ethics of Medicine

Some of the HPS modules are offered as Minor Subjects, but only to students who are not taking Major Subject History and Philosophy of Science and Medicine.

BBS students will give a talk on the topic of their dissertation, followed by questions, during Lent term.

For further information see:

www.hps.cam.ac.uk/study/undergraduate/bbs



Dissertations and Exams

MARKS

The maximum marks allocated for the course components are as follows:

Major Subject:	64
Minor Subject:	16
Dissertation:	20

Total: 100



The Gordon Wigan Prize for Biological and Biomedical Sciences shall be awarded to the candidate who is at the top of the class list for NST Part II BBS, and achieves a First Class mark. The prize is a book token for a value of £100.

EXAMINATIONS

The papers offered will normally be the same as those for the single Major Subject. For most Minor Subjects, the paper is borrowed from another Tripos. There is a separate class list for NST Part II BBS, which will be published after the single-subject class lists.

DISSERTATION MARKING CRITERIA

The Faculty Board's marking criteria are available on the web at:

www.biology.cam.ac.uk/exams/AllExams/marketing-part-ii-dissertations/marketing-diss



Dissertations

THE PURPOSE OF A DISSERTATION

The purpose of the dissertation is to give you an opportunity to produce a substantial piece of original work. It should be an extended account of a topic or question that lies broadly within the field of either your Major or Minor Subject. In producing your dissertation, you will be expected to show skills in researching primary literature, critically evaluating published information, and marshalling arguments to produce a structured critical assessment of a defined topic.

THE DISSERTATION PROCESS

You will be required to write a dissertation on a topic related to either your Major or Minor Subject, of up to 6,000 words excluding appendices, tables, figures, footnotes and bibliography. You will be required to submit your title (chosen from a list offered by the Departmental Course Organiser or suggested by you) by Division of Michaelmas Full Term. Your title is approved by your Supervisor, the Departmental Course Organiser, and then returned to the Faculty Office for final approval by the BBS Course Coordinator, who will also establish that all students taking the course have submitted an appropriate title. Your dissertations must be submitted to the BBS Moodle Site by the first Friday of the Easter Full Term.

SUPERVISIONS FOR YOUR DISSERTATION

You can expect to receive a maximum of four supervisions with your Dissertation Supervisor to provide guidance on your dissertation. Detailed guidance for both students and supervisors is available on the BBS website.



Dissertations

EXAMPLE DISSERTATION TITLES

- The potential uses and limitation of phage therapy (Biochemistry)
- Transcriptional signature matching strategies in computational drug discovery and repositioning (Bioinformatics)
- A comparison of incidence of cancer in South Asian (Bangladeshi, Indian and Pakistani) populations in the UK and South Asia (Genetics)
- Medicalisation and violence against women: implications for the medical encounter (Health, Medicine and Society)
- How can medication adherence among patients with schizophrenia be improved? (General Practice and Primary Care Research (now Applied Clinical Research))
- The evolutionary origins of human female aggression (Human Evolution, Ecology and Behaviour)
- Exploring mechanisms linking the gut microbiota to depression (Pathology)
- Personalised medicine in the clinic – fantasy or reality? (Pharmacology)
- Winds of change: lessons from Clyde River in decolonisation and climate (Philosophy and Ethics of Medicine)
- What are the implications of maternal obesity on the placenta in determining pregnancy outcomes? (PDN)
- Micro-plastics in freshwater – should we care? (Plant Sciences)
- Is anorexia an obsessive compulsive disorder? (Psychology)
- Outcomes after pulmonary endarterectomy: a meta-analysis (Surgical and Radiological Anatomy)
- The likely impacts of predicted climate change on the biodiversity of UK rivers (Zoology)

Student Support



The department in which you are taking your Major Subject will be designated as your “home” department. If your Major Subject comprises modules offered by more than one department, one of these departments will be assigned as your “home”; this will usually be the department in which you are doing your dissertation. As an NST Part II BBS student you will have access to the same resources and support in your home department as single subject NST Part II students.

BIOLOGICAL SCIENCES LIBRARIES SUPPORT FOR BBS STUDENTS

During your studies you will be supported by the dedicated Biological Sciences Libraries Team. Our Team can be found in different libraries across Cambridge and [further information can be found on their website.](#)

The SBS libraries team can help you with a lot of things including getting access to resources to support your work such as books, articles, and databases. They can chat about your work through 1-2-1 meetings as well as in [teaching sessions](#) where they can help you develop many of the skills you’ll need for working at Part II. They also look after the [dedicated BBS Dissertation Digital Collection](#) where you can look at previous work to guide your own current research.

If you have any questions you can contact them by emailing:
sbslibraries@lib.cam.ac.uk.



Lecture Recordings

The NST Management Committee expects most lectures will be suitable for recording. We therefore strongly encourage academic staff to consent to their lectures being recorded via Panopto, where recordings will be made available to students via the course Moodle site.

Where a lecture is not recorded, students will be informed in advance via Moodle. In this instance, alternative arrangements will be made to accommodate the needs of students who are entitled to access lecture recordings. [Additional information on the code of practice](#) can be found on the Education Quality and Policy Office website.

The [University guidance on the recording of lectures](#) can also be found on the Education Quality and Policy Office website. Students can raise queries or concerns about the provision of recorded resources by contacting the teaching office for that course.



Student Feedback



HOW TO GIVE FEEDBACK

There is an annual course feedback survey or you can feedback to your BBS student representatives whose names can be found on the BBS Moodle Site.

The Course Management Committee for NST Part II Biological and Biomedical Sciences is the [Biological Sciences Committee](#). Comments and feedback on the course can be given to the student representative of the BSC for discussion by that Committee, or fed to the relevant Course Organiser for the appropriate Departmental representative to bring to the BSC.



LAUREN, BBS 2017-18

Major Subject: Biochemistry

Minor Subject: EnterpriseTECH (no longer offered as a minor subject)

"After studying a range of topics during the first two years of Natural Sciences, BBS was a great way to specialise (studying a Biochemistry major) while studying another subject I love and want to pursue in the future (EnterpriseTECH as minor). There's many options of topics and ways to study, so BBS subjects are definitely worth looking into when deciding on third year.

The courses are well organised timetable, logistics and assessment wise. Even though you're studying two subjects, the workload doesn't seem more than students just studying a single. In most BBS major subjects, you'll do a dissertation as coursework instead of a lab project, which also makes Easter/Lent term less stressful!

Being a member of two departments is also great, and you get to work with and know a lot more students and staff. Loved my time as a BBS student, how the course let me study and has fuelled my passion for multiple topics, and how it's opened many doors for future study and careers."



Student Feedback

RACHEL, BBS 2017-18

Major Subject: PDN

Minor Subject: General Practice and Primary Care Research (renamed to Applied Clinical Practice from 2020)

"For my third year I did the BBS course with major in Physiology, Development and Neuroscience (PDN) and minor in GP and Primary care research offered at the Primary Care unit. I really enjoyed the BBS course! Doing both major and minor subjects allows you greater breadth. My major, PDN, was very cutting edge, scientific and theoretical. But as a medic, I really appreciated the pragmatism and clinical relevance of my minor subject. BBS allowed me to do these very contrasting subjects in parallel! With BBS you write a dissertation, as opposed to a lab based project. Though your departments usually offer a notional list of titles you have the freedom and flexibility to approach essentially anyone in your department with any question and they can make it happen. For instance, I concocted a question based on a single paper which really piqued my interest and was able to approach its author to supervise me. I appreciated this freedom as I felt I was committing my time to something I really was interested in.

My minor subject in GP and primary care research was a particular highlight of my part II. In Michaelmas, we were taught by the senior academics in the Primary Care Institute in the methods used in primary care research and taught how to critique it. Then in Lent, we were placed with one of the research teams and through supervisions were able to explore many of the particular research issues in their field. Our lecturers and supervisors were approachable and enthusiastic. It opened my eyes to areas of research and careers paths within medicine I didn't know existed. And as a final bonus - there were only 4 people on the course in my year! We got to know each other really well, did multiple formals and keep up with each other now in Clinical school."

2024-25

www.biology.cam.ac.uk/undergrads/nst/bbs

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