

## Course Information| Ngā Whakamārama - 2024

### **BIOL116-24S2 (C) Semester 2, 2024**

#### **Human Biology**

0.125 EFTS    15 Points

Second Semester

#### **Course Coordinator | Kairuruku Akoranga**

A/Prof Steven Gieseg, room 754, West Building, School of Biological Sciences

E-mail: [steven.gieseg@canterbury.ac.nz](mailto:steven.gieseg@canterbury.ac.nz).

Please begin the subject line of any emails to A/Prof Gieseg “BIOL116.....”

#### **Prerequisites**

There are no formal prerequisites for the course, but knowledge of biology will be useful.

#### **Course Description | Whakamahuki**

Human Biology is an introductory course that looks at the biology of *Homo sapiens* from a number of different viewpoints including the actions of individual cells and even individual molecules. Labs in the course have been designed to assist the learning of the broad themes covered in the lectures.

#### **Goals of the Course**

The aim of the course is to introduce students to aspects of human biology and health: Basic anatomy, nutrition, genetics, immune response, and human body / microbe interface.

#### **Learn - [learn.canterbury.ac.nz](https://learn.canterbury.ac.nz)**

The Learn website is your ‘home base’ for BIOL116 and other courses that you are taking at University of Canterbury. On the BIOL116 Learn pages, you will find the topics of each lecture, which textbook pages you need to read and how to prepare for each lecture and lab. The online quizzes can also be found on Learn, as well as your marks for these quizzes and other items of assessment. Video recordings of each lecture are available from Echo360 in Learn.

#### **Check your UC email regularly!**

From time to time, we will email you information about various aspects of the course. These emails will be sent to your UC email address. Please check your email daily.

## **Timetable:**

Please consult the Course Information System (CIS) on the University Web site for lecture times and venues as these can change.

## **Lecture Plan (subject to change)**

### **Section 1: Introduction**

**Lectures: Annabel Ahuriri-Driscoll and Arindam Basu**

(email: annabel.ahuriri-driscoll@canterbury.ac.nz; arindam.basu@canterbury.ac.nz)

Weeks 29

### **Section 2: Being human (3 lectures)**

**Lecturers: Prof. Jack Heinemann** (Email: jack.heinemann@canterbury.ac.nz)

Weeks 29-30

In the context of human health I'll be discussing a person as an ecosystem. The first ecosystem is the external body. The second ecosystem is that within the genome. Finally, we'll discuss the ecosystem of phenotypes and how to know which are learned and which are a product of our genes.

### **Section 3: Public Health (5 lectures)**

**Lecturers: Dr Arindam Basu**

(Emails: arindam.basu@canterbury.ac.nz)

Weeks 29-31

### **Section 4: Genetics in human health and disease (5 lectures)**

**Lecturer: Dr Amy Osborne** (Email: amy.osborne@canterbury.ac.nz)

These lectures will focusses on the genetics of human health and disease. We look at DNA replication and how that can lead to mutation, and we assess different types/scales of mutations. We learn about meiosis and how that can lead to chromosomal disease, and discuss some of the diseases caused by errors in meiosis. We touch on molecular pathology (connecting genotypes to phenotypes) and lastly we look at the genetic drivers of cancer.

Weeks 32 - 33

**Online lecture Test of Prof. Jack Heinemann material (21 August, 7:30 pm, 1 hour, Check Timetable)**

### **Section 5: Blood and organs (6 lectures)**

**Lecturer: A/Prof Steven Gieseg** (Email: steven.gieseg@canterbury.ac.nz)

The anatomy and functioning of the blood circulation (arteries to veins), the heart and the composition of the blood is examined. We will look also at the anatomy and function of the kidneys and liver. The pathology of cardiovascular disease (heart attacks and strokes), kidney stones and fatty liver disease/hepatitis is discussed.

Weeks 33 – 37 (Term Break in middle of section)

**In term, closed book, in person test in Week 37, 7-9 pm (Even either Tues, Wed Thurs, C lecture theater, Check Timetable)**

### **Section 6: Human Immunology and Inflammation (8 lectures)**

**Lecturers: A/Prof David Leung** (Email: david.leung@canterbury.ac.nz)

Weeks 37-40

The innate and adaptive immune response in disease defence is examined. An introduction into the involvement of major types of white blood cells and chemicals in immune response will be provided. The scientific basis of vaccination will be discussed. We will also look into some examples of immune disorders.

### **Section 7: Basu Infectious Disease (2 lectures)**

(Email: arindam.basu@canterbury.ac.nz)

**Lecturer: Dr Arindam Basu** Weeks 37 - 40

## Section 8: Food and nutrition (6 lectures)

**Lecturer: Claudia Meisrimler** (Email: claudia.meisrimler@canterbury.ac.nz)

The study of nutrition will cover essential macromolecules such as proteins, carbohydrates, and lipids, highlighting their importance in the human body followed by an examination of the roles of minerals and vitamins. The anatomy, mechanisms and function of the human digestive will be described focusing on enzymatic digestion and uptake processes. The common digestive disorders of gluten intolerance and celiac disease will be examined to understand what happens when these processes go awry. We will look at the gut microbiome, examining its composition and significance within the digestive system.

Weeks 41 - 42

## Laboratories

Laboratories start Term 3, starting in the week of **3<sup>rd</sup> week of term**. The laboratories (3 hours each) help you to develop your understanding of topics addressed in the lectures and textbook. In addition, they allow you to develop important practical skills and are a great opportunity to ask questions or get help from your lecturers. Preparation for labs is vital to your success in the lab.

### Lab attendance is compulsory.

If you are repeating this course, you may request that your laboratory mark from 2023 be rolled over in used for 2024. You are then excused the laboratories for this year. To do this, email the course coordinator Steven Giesege.

1<sup>st</sup> Laboratory, Vitamin C in foods and drinks, (Dr Claudia Meisrimler).

2<sup>nd</sup> Laboratory, Human Blood Composition, (Dr Arindam Basu).

3<sup>rd</sup> Laboratory, Anatomy of Digestion (A/Prof Giesege)

4<sup>th</sup> Laboratory, Immunological detection of gluten in wheat seed and foods (A/Prof Leung)

If you miss a laboratory you can try and attend the a laboratory later in the week. If you are ill, do not attend the laboratory and obtain a doctors certificate which should be sent to the course coordinator (A/Prof Giesege).

**The subject line of the email must begin “BIOL116 Medical Certificate”.**

## Assessment

Mid-course test	27%	(First week of Term 4 covering lecture sections 1, 3 and 4) <b>Check time table for details.</b>
Lecture Test	7%	(Online test of Prof Heinemann lectures, section 2, Week 34) <b>Check time table for details.</b>
Laboratory work	16%	(In course assessment on laboratory reports)
Final exam	50%	(Covering Lectures sections 5-8 only. Date and time to be set by Central Administration)

**NOTE:** The Mid-course test and final exam will be **in person, closed book examinations**.

All pieces of assessment are available for special considerations. Applications must be made on the approved form available from the Registry. See the course coordinator if you are not sure what to do.

## Textbooks and Reading

It is the School of Biological Science's policy that every test or exam will have a substantial and unavoidable component that is based on the assigned readings for courses. Some of these assigned readings may be in textbooks such as Campbell and Reece "Biology A Global Approach", others may be provided by the lecturer either on or linked through Learn.

We recommend that you ensure you have access to Campbell and Reece "Biology a Global Approach, 11 Edition". This is also available through the library, QH 308.2 .C189 2018, Central Library.

## Graduate Profile | Āhuatanga Taura

This course will provide students with an opportunity to develop these UC Graduate Attributes (GP) and Kaupapa (K)

([www.canterbury.ac.nz/study/graduate-profile/students/what-are-the-graduate-attributes/](http://www.canterbury.ac.nz/study/graduate-profile/students/what-are-the-graduate-attributes/)):

GP1 Critically competent in a core academic discipline.

GP2 Employable, innovative and enterprising.

GP3 Biculturally competent and confident: K1 A process of self-reflection on the nature of 'knowledge' and 'norms' K3 Traditional and contemporary realities of Māori society e.g. tikanga and kawa, te reo Māori K7 Application of bicultural competence and confidence in a chosen discipline and career

GP5 Globally aware

## Intended Learning Outcomes and Associated Assessment| Hua Akoranga and Associated Assessment | Aromatawai

*As a student in this course, I will develop the ability to:*

1. Appreciate the biodiversity of an individual human body: (assessment item: *mid-course test*) (assessment item: *short lab quiz*), **Graduate Profile 1, 3 and 5**
2. Gain basic knowledge about human organs and functions (assessment item: *lab reports, final exam*), **Graduate Profile 1.**
3. Relate human health to immune response and microbes associated with the human body (*mid-course test and final exam*) **Graduate Profile 1**
4. Understand basic biochemical experiments and detection of common microbes associated with the human body (assessment items: *short lab quiz*) **Graduate Profile 1.**
5. Recognise and evaluate genetic deterministic views of human biology, health and disease: (assessment items: *mid-course test and final exam*), **Graduate Profile 1 and 3.**
6. Have a basic understanding of molecules of life and human nutrition: (assessment item: *lab report and final exam*), **Graduate Profile 1 and 3.**
7. Demonstrate basic knowledge of food allergen and detection using antibody:(assessment item: *short lab quiz*), **Graduate Profile 1.**
8. Understand basic biochemical experiments and detection of common microbes associated with the human body (assessment items: *short lab quiz*), **Graduate Profile 1.**

## Transferable Skills Register | Pūkenga Ngaio

*As a student in this course, I will develop the following skills:*

1. Completing tasks in a laboratory. Important in many science-related courses and jobs. *We will have lab instructions on what is required in each lab session.* (Employable, innovative and enterprising), **Graduate Profile 2.**
2. Providing required information in a written form of acceptable standard. This is necessary in most science-related courses and jobs. *We will have previous mid-term test and exam questions on the course Learn site.* (Employable, innovative and enterprising), **Graduate Profile 2.**

3. Learn independently through reading of assigned material. *Tests and exams will have components that test your competency in assigned readings. Graduate Profile 1 and 5.*

4. Learn foundation knowledge on human biology to gain the ability to advance to other courses and disciplines, *Graduate Profile 1 and 5.*

## RULES, REGULATIONS, AND WHAT TO DO WHEN THINGS GO WRONG

[updated March 2023]

**If in doubt:** ASK! The course coordinator is happy to answer questions. All staff involved in the course are available for advice on specific issues.

### What do I do if I have to miss a test/exam or if my performance was impaired?

In Biological Sciences, we require a satisfactory level of achievement in both the theoretical aspects of the discipline and in practical activities. **This means you must attend all class activities (labs, tutorials, fieldtrips)** and submit all items of assessment unless you have a very good reason not to (e.g. medical reasons) and if this has been approved by your course coordinator.

If you feel that **illness, injury, bereavement or other extenuating circumstances beyond your control** prevented you from completing a **test/exam** worth 10% or more of the total course assessment, or if these circumstances affected your performance in such assessments, you should apply for Special Consideration. Applications for Special Consideration should be submitted via the Special Consideration website <http://www.canterbury.ac.nz/study/special-consideration/> within five working days of the assessment or its due date. You should also notify the course coordinator. If you apply for Special Consideration because of medical reasons, you should visit a doctor within a reasonable timeframe (application form available on the website above or from the Student Health Centre).

The Special Consideration provisions are intended to assist students who have covered the work of a course but have been prevented by illness or other critical circumstances from demonstrating their mastery of the material or skills at the time of a test/exam – **they do not excuse you from doing the test/exam** within a reasonable time agreed with the course coordinator.

### What do I do if I have to miss a quiz or assignment or if I need an extension?

You cannot apply for Special Consideration if you miss an assessment that is not a test/exam, such as a quiz, lab report, essay, literature review or other assignment, or if the test/exam is worth less than 10% or more of the total course assessment. If this happens or if you need an extension because of **illness, injury, bereavement or other extenuating circumstances beyond your control**, please contact the course coordinator and arrange an alternate activity and/or submission date. You should also do this if you have to miss a laboratory, tutorial or field trip.

### What are other valid reasons to miss an assessment or mandatory course activity?

The Special Considerations policy (<https://www.canterbury.ac.nz/about/governance/ucpolicy/student/special-consideration-procedures-and-guidelines/>) outlines only a few kinds of activities that UC considers valid reasons for missing an assessment or mandatory course activity other than those outlined above. These include **involvement in international or national representative sport or cultural groups**. Holiday trips, birthday parties, weddings, work-related commitments etc. are not given special status in this University policy. Please contact your course coordinator to ask for an alternate activity and/or submission date if you are eligible.

### Special Consideration for late discontinuation of a course

Students prevented by **extenuating circumstances** from completing the course after the final date for withdrawing, may apply for Special Consideration for late discontinuation of the course. Applications must be submitted via <http://www.canterbury.ac.nz/study/special-consideration/> no later than five working days after the examination period has finished.

### Academic Integrity

It is the responsibility of each student to be familiar with the definitions, policies and procedures concerning academic misconduct/dishonest behaviour. Instances of academic misconduct will be dealt with in a serious and appropriate manner. Students should refer to: <https://www.canterbury.ac.nz/about/ako/academic-quality/academic-integrity/>

### Plagiarism

It is essential that you are aware that plagiarism is considered a very serious offence by the academic community, the University and the School of Biological Sciences. Plagiarism is defined as taking content from another work or author and presenting it, without attribution, as if it is your own work. Content here includes text (sentences or major parts of sentences), display items (graphs and tables), and overall structure (the detailed sequence of ideas). Plagiarism includes:

- re-use of previous assignments (even if each individual sentence has been rephrased to say the same thing in different words, if the overall structure is re-used).
- copying of another student's work (with or without their consent).
- the unreferenced use of published material or material from the internet, e.g. cutting and pasting of paragraphs or pages into an essay.
- the generation of text using artificial intelligence technology without disclosure and when it is not intended to be part of an assignment.

For most pieces of in-term assessment you will be given information concerning the use of direct and indirect quotes from previously published work. If you have any doubt about the appropriate use of published material, please speak with an academic staff member. If you are unsure what plagiarism is, seek advice.

It is a School policy that courses will likely that you submit work electronically for subsequent analysis of originality using *Turnitin*. Students agree that by taking courses in BIOL, assessments may be submitted to Turnitin.com for textual similarity review. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Terms and Conditions of Use as posted on the Turnitin.com site.

#### **Where do I hand in assignments and then collect them once marked?**

All assignments should be submitted as directed by the course coordinator. Typically, this will be electronically via Learn for on-line grading and for analysis in *Turnitin*. If a hard copy is requested, assignments should be placed in the designated collection boxes in the foyer of the 2nd floor of the School of Biological Sciences (Julius von Haast building, at the top of the stairs). All assignments must be accompanied by a cover sheet signed by you stating that the submitted work is not plagiarised. Cover sheets are available on top of the collection boxes, or you can download one from the Biology website (<http://www.canterbury.ac.nz/media/documents/science-documents/assignment-coversheet.pdf>).

Marked assignments will be returned through Learn or, if in hard copy, can be collected from the School of Biological Sciences reception, unless directed otherwise by the course coordinator. Teaching staff will endeavour to return work as soon as possible, and should contact you if there are likely to be any delays that will prevent return within the maximum 4-week timeframe.

#### **What if I can't get it finished in time?**

Reports and assignments should be handed in on time. Extensions may be granted if you have a valid reason (see above). **If you require an extension, you should request one from the course coordinator** (or the lecturer responsible for marking the work), with as much notice as possible. Please do this **BEFORE** the deadline for the assignment. **If you have been given an extension and you have been asked to submit a hard-copy of your work, you should hand the work DIRECTLY to the course coordinator** (do not put it in the drop box as it may not be cleared after the due date).

If an extension has not been granted:

- work handed in within 1 hour of the deadline: penalty of up to 5 percentage points of the mark for the assignment (e.g., a mark of 75% might be reduced to 70%).
- work handed in 1 – 24 hours after the deadline: penalty of 10 percentage points of the mark for the assignment (e.g., a mark of 75% is reduced to 65%).
- work handed in 1 – 7 days after the deadline: penalty of 15 percentage points of the mark for the assignment (e.g., a mark of 75% is reduced to 60%).
- work handed in more than 7 days after the deadline will not be marked or earn credit.

#### **What if I have written more than the word or page limit?**

If there is a word limit on an assignment, it is usually there to stop you doing too much work and to encourage you to write succinctly. You can be up to 10% over without too much worry, but if the length increases beyond that your mark may suffer due to failure to follow the requirements. If you find yourself way over the word limit talk to the lecturer concerned about how to get your assignment to an acceptable length. Unless specifically advised that there is flexibility, you must adhere to the word limit indicated.

#### **What if I fail part of the course?**

In Biological Sciences, we require a satisfactory level of achievement in both the theoretical aspects of the discipline and in practical activities. This means you must attend all class activities and submit all items of assessment unless you have a very good reason not to (e.g. medical reasons). **A student must attain an average score of at least 40% for in-course assessments (e.g. assignments, reports, quizzes) and an average score of at least 40% in the exam and/or tests, AND score at least 50% overall for the course, to be awarded a passing grade. See the course outlines for clarification of the assessment items included in each category and ask the coordinator if you are still unsure.**

#### **What's the best way to give feedback?**

We welcome constructive feedback at all times – help us to make this a valuable course for you. We endeavour to remain approachable at all times. If you would rather give feedback anonymously, please use the online course survey or talk to lab demonstrators, or your class rep (who will all report back to the staff-student liaison committee that includes a representative from each of the undergraduate classes). Class representatives will be selected from each class at the start of course.

#### **What's the best way to complain?**

If you feel you have not been fairly treated during this course, please raise the issue with the lecturer or course coordinator in the first instance. Other avenues include your class rep., who can raise issues anonymously, or the UCSA education coordinator.

### **Grading**

A+	90% or above
A	85 – 90
A-	80 – 84
B+	75 – 79
B	70 – 74
B-	65 – 69
C+	60 – 64

C	55 – 59
C-	50 – 54

A restricted pass (R) **may** be awarded to those who are close to a pass (i.e. an overall score of 48-49.9%) AND who have achieved at least a 40% overall score in both in-course assessment and tests/exams. If an R grade is awarded you gain credit for the course but **cannot continue into papers that require this course as a pre-requisite**. NB. The R grade is only available at 100 and 200 level - it cannot be awarded for third year papers.

Failing grades: D 40-49      E 0–39