

General Information

Module Code

BIO-4018A

Academic Year

2021/2

Module Title

MOLECULAR BIOLOGY AND GENETICS

Module type

WW

Semester / Term

SEM1

Level

4

Credit Value

20

Scheme

UG

Related Modules:

Pre-requisite**Co-requisite****Forbidden**

Timetable slot

BB

Is this module suitable for inbound study abroad students?

Y

Additional costs

Maximum number of students

999

Module Organiser

Dr Mark Coleman

Module Description**What is this module about?**

This module explores how information is stored in DNA, how it is expressed, copied and repaired, and how DNA is transmitted between generations. It has significant focus on the application of molecular biological and genetics knowledge, including animal, plant and microbial biotechnology and synthetic biology.

Learning objectives and Outcomes**What are the Learning objectives?**

This module explores how genetic information is stored, how it is expressed, copied, and repaired, and how it is transmitted between generations.

What are the Learning Outcomes?

Name	Details
1	
DNA and RNA	Understand the structure and function of DNA and RNA.
2	
Information flow	Understand information flow in molecular biology, especially the flow from DNA to mRNA to protein in gene expression.
3	
Gene expression	Understand the processes of transcription and translation, including the function of the main proteins and enzymes.
4	
Inheritance	Understand the how information is transmitted from one generation to the next in the process of inheritance.
5	
Mapping	Understand the construction of genetic maps

6

Applied molecular biology

Understanding of the techniques which underpin modern molecular biology and how molecular biology is applied to biotechnology and synthetic biology

Learning activities and Effort hours

Learning activity	Total effort hours	Indicative effort hours per week
1. Class sessions (Lectures, workshops, lab sessions, seminars etc.)	34	3
2. Pre-class preparation and follow up study	72	4
3. Work-based or Placement Hours	0	0
4. Formative assessments/ activities	12	1
5. Feedback/ Feed forward sessions	4	0.3
6. Summative assessments (essays, dissertations, oral presentations, worksheets, lab reports etc.)	10	1
7. Background reading	25	1.5
8. Exams/ OSCEs	3	0
9. Course Tests		
10. Tutorials (Individual or small groups)		
Total Hours =	160.00	10.80

Learning Support Materials

Should this module be exempt from requiring an online reading list?

N

Link to Talis (<https://uea.rl.talis.com/index.html>)

Formative Assessments

Sequence	Assessment Type	Title	Deadline
FM1	Formative Assessment	Formative Exercise in Data Analysis and Presentation Group 1	19/Oct/2021
FM2	Formative Assessment	Formative Exercise in Data Analysis and Presentation Group 2	19/Oct/2021
FM3	Formative Assessment	Formative Exercise in Data Analysis and Presentation Group 3	26/Oct/2021
FM4	Formative Assessment	Formative Exercise in Data Analysis and Presentation Group 4	26/Oct/2021
FM5	Formative Assessment	Formative Exercise in Data Analysis and Presentation Group 5	26/Oct/2021
FM6	Formative Assessment	Formative Exercise in Data Analysis and Presentation Group 6	02/Nov/2021
FM7	Formative Assessment	Formative Exercise in Data Analysis and Presentation Group 7	02/Nov/2021

Summative Assessments

Sequence	Assessment Type	Title	Deadline	Weighting	Method of submission	Method of return	Return date	Fee
001	Written Assignment	Concise Lab Report Group 1	02/Nov/2021	40 / 100	Coursework: Turnitin submission point	VIA BLACKBOARD		Fo scr an an su Pu en lea da an pre
Further Details	Analyse data generated in-class and present in a format suitable for publication.							

Sequence	Assessment Type	Title	Deadline	Weighting	Method of submission	Method of return	Return date	Fo pu fee
002	Exam Standard	Exam Group 1		60 / 100	Exam: Bb advanced	VIA BLACKBOARD		Fo scr an an sul Pu en lea

Further Details

Limited time, open book exam that promotes learning and tests the extent to which all module learning

Attribute Development

On this module students will develop knowledge, insights and attributes that are readily transferable into future or current work settings. The attributes are articulated below to help understand how the module will help students to thrive on their course and prepare them for the world of work. These attributes are also articulated within the UEA Award.

Academic excellence

- In-depth and extensive knowledge, understanding and skills in chosen discipline(s)
- The ability to collect, collate, analyse and critically engage with a wide range of information sources, and evidence
- The ability to analyse and critically engage with a wide range of concepts and ideas

Critical thinking & problem solving

- A capacity for independent, conceptual and creative thinking
- A capacity for informed argument and logical reasoning
- A capacity for problem identification and problem-solving

Learning & personal development

- A commitment to developing professional values, self-insight and capabilities
- The ability to respond positively to constructive criticism and feedback from peers, tutors and colleagues
- Self-confidence and an ability to exercise own 'voice'

Digital literacy and IT

- Confidently employ a range of digital technologies for academic and professional/ career development purposes

- Use appropriate digital technologies and resources to locate diverse types of information for both academic and non-academic purposes
- The ability to critically evaluate and engage with the information obtained

Self-management & professionalism

- A capacity for taking responsibilities and ownership of actions
- An ability to manage time effectively, including setting priorities, juggling competing demands and meeting deadlines
- An understanding of work cultures and practices, including work place professionalism

Team working and leadership

- An ability to co-operate and collaborate with others, including working to shared aims
- An ability to take other viewpoints, have empathy for other people's position and give constructive feedback
- An ability to motivate and lead others, including taking the initiative and delegating when required

Communication

- An ability to communicate in written form for different purposes, audiences and contexts
- An ability to communicate in person for different purposes, audiences and contexts
- An ability to network effectively with others for specific purposes

Applied numeracy and Technical proficiency

- An ability to perform routine calculations in daily tasks and in applied contexts
- An ability to analyse and interpret data and evidence
- Proficiency in skilled techniques used for academic and professional purposes

Career management

- A capacity to reflect on and articulate qualities, strengths and attributes
- The ability to research specific job and career areas
- An ability to present your experience and attributes positively to graduate employers

Commercial awareness

- A knowledge of the link between academic subjects and their commercial applications
- An understanding of business priorities and the needs of graduate employers
- The ability to understand and prioritise customer needs

Innovation and enterprise

- The confidence to introduce and establish something new
- The potential to take an idea through to its practical application
- The potential to apply an enterprising mind-set to situations

Citizenship and stewardship

- An understanding of your place within local and global communities
- An awareness of the need to manage shared and finite resources, including an appreciation of moral and ethical dimensions
- An ability to improve the lives of others and lobby for positive change through community and/or political engagement