

BS347-12 Oncology

21/22

Department

Life Sciences

Level

Undergraduate Level 3

Module leader

Philip Young

Credit value

12

Module duration

10 weeks

Assessment

100% exam

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module aims to give students both an overview of cancer and also a more detailed understanding of specific aspects of its underlying causes and its clinical management.

[Module web page](#)

Module aims

This module aims to enable science students to bring their knowledge of cell and molecular biology to an understanding of the mechanisms through which cancer develops. However, we go further: the module aims to integrate biomedical and clinical aspects of oncology so that the student develops a satisfying all-round understanding of the complex biological and social phenomenon which is cancer⁵. To develop knowledge and understanding of data handling and statistical tests needed in Immunological research.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Lecture 1: Introduction to the cancer

Lecture 2: aetiology and causes of cancer
Lecture 3: cancer development
Lecture 4: cancer stem cells and heterogeneity
Lecture 5: growth factor signalling and the MAPK pathway
Lecture 6: apoptosis and cell death
Lecture 7: autophagy in malignant transformation and cancer progression
Lecture 8: environmental factors that trigger DNA mutations
Lecture 9: DNA damage
Lecture 10: DNA repair and p53
Lecture 11: circadian clocks and cancer
Lecture 12: circadian rhythm and chemotherapy
Lecture 13: common oncogenic viral infections
Lecture 14: oncogenic viral mechanisms and therapeutic targets
Lecture 15: angiogenesis and metastasis
Lecture 16: immunotherapy and immune surveillance.
Lecture 17: biomarkers and cancer monitoring / diagnosis
Lecture 18: Haematology 1: lymphoma
Lecture 19: Haematology 2: leukemia
Lecture 20: Haematology 3: multiple myeloma

Learning outcomes

By the end of the module, students should be able to:

- LO1 Know what are the causes of cancer and how they are detected
- LO2 Be able to describe the biological process by which cancer develops – carcinogenesis
- LO3 Have a good understanding of the main molecular mechanisms underlying carcinogenesis
- LO4 Know the main cellular mechanisms which limit the development of cancers
- LO5 Know the main immunotherapeutic targets and their mechanisms
- LO6 Know the main haematological cancers, their aetiology, causes and treatment strategies

Indicative reading list

Hall, 2006. 3rd edn.

The Cancer Handbook on line at the library's electronic books page. This is a multi-authored encyclopaedia which should be consulted for specific topics.

Subject specific skills

1. Understanding the basic molecular control of cell cycle regulation and cancer
2. Understanding the molecular basis of cancer development
3. Understanding the importance of biological clocks
4. Understanding the molecular basis of oncoviruses
5. Understanding medical statistics, prognosis and biomarkers
6. Understanding the molecular basis and prognostication of haematological cancers

Transferable skills

1. Critical appraisal of source material
 2. Self directed learning
 3. Adult learning
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Study

Study time

Type	Required
Lectures	20 sessions of 1 hour (17%)
Private study	100 hours (83%)
Total	120 hours

Private study description

100 hrs of self-study and directed reading

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Students can register for this module without taking any assessment.

Assessment group B1

	Weighting	Study time
Written Examination	100%	
ESSAY BASED EXAM- STUDENTS NEED TO ANSWER 2 OUT OF 4 SET QUESTIONS IN 1.5 HRS		

Feedback on assessment

Pastoral meetings with personal tutor

[Past exam papers for BS347](#)

Availability

Courses

This module is Core optional for:

- UBSA-C1B9 Undergraduate Biomedical Science
 - Year 3 of C1B9 Biomedical Science
 - Year 3 of C1B9 Biomedical Science
 - Year 3 of C1B9 Biomedical Science
- Year 3 of ULFA-C1A3 Undergraduate Biomedical Science (MBio)

This module is Optional for:

- Year 4 of UCHA-4M Undergraduate Master of Chemistry Variants

This module is Option list A for:

- Year 3 of UBSA-C700 Undergraduate Biochemistry
- ULFA-C1A2 Undergraduate Biochemistry (MBio)
 - Year 3 of C1A2 Biochemistry
 - Year 3 of C700 Biochemistry
- UBSA-3 Undergraduate Biological Sciences
 - Year 3 of C100 Biological Sciences
 - Year 3 of C100 Biological Sciences
 - Year 3 of C102 Biological Sciences with Cell Biology
 - Year 3 of C103 Biological Sciences with Environmental Resources
 - Year 3 of C104 Biological Sciences with Microbiology
 - Year 3 of C105 Biological Sciences with Molecular Genetics
 - Year 3 of C107 Biological Sciences with Virology
- Year 3 of ULFA-C1A1 Undergraduate Biological Sciences (MBio)
- UBSA-C1B9 Undergraduate Biomedical Science
 - Year 3 of C1B9 Biomedical Science
 - Year 3 of C1B9 Biomedical Science
 - Year 3 of C1B9 Biomedical Science
- ULFA-C1A3 Undergraduate Biomedical Science (MBio)
 - Year 3 of C1A3 Biomedical Science
 - Year 3 of C1B9 Biomedical Science