A complete advanced undergraduate/graduate course with:

- 16 online lectures by leading authorities
- Resources for workshops, tutorials, journal clubs, projects and seminars
- Suggested exam questions and model answers
- Multiple choice questions and answers
- Recommended reading: original papers and review articles

View the content of the course on our website: hstalks.com/CancerGenetics

View our in-depth HSTalks: hstalks.com/CoursesBrochure
Course module with video lectures, material for tutorials (case studies, projects, workshops and recommended reading), multiple choice questions and suggested exam questions with model answers. A comprehensive course on a subject of major importance.

The material is especially designed to support research and teaching staff when presenting a comprehensive course at graduate or advanced undergraduate level with seminars, journal clubs, laboratory exercises, data workshops, online tests and end of course examinations.

The course is also suitable for continuing professional development/education programmes.

This brochure provides brief details of the complete module, including the lectures, lecturers and additional learning material.

**Who is the course for?**

The comprehensive material is especially suitable for teachers and researchers who wish to offer courses on specialist subjects to small groups of students (or even a single student) when it is not possible to justify the time and expense of preparing, internally, a course or there is not the range of expertise available locally to do so. All the lecturers are highly regarded experts in their fields and few institutions are likely to have a comprehensive group of faculty members with a similar range of experience and knowledge of the subject matter.

The course material is designed to be used by local faculty and staff acting as course directors, tutors and mentors.

The material is suitable for flipped classroom, blended, team and distance learning courses.

New courses are time consuming and expensive to create. These modules cut both the cost and the time, enabling a wider range of options to be offered on specialist topics. Graduate students can take the courses, mentored by their supervisors, while pursuing their research.

**Ideal for Virtual Learning Environments (VLE)**

All course material, including the additional learning material, is arranged in a standard format that allows easy embedding into virtual learning environments such as Moodle, Blackboard or your institute’s own system.

**Supporting learning and teaching goals**

In an age when faculty and staff face ever greater demands on budgets and time, these lectures and additional learning material will be of great help when preparing and delivering graduate and advanced undergraduate courses.
Cancer is a genetic disease because it is caused by mutations. Cancer Genetics is the discipline of understanding the genetic processes underlying tumor development. Genetics play a unique role in the laboratory and in the clinic in understanding the mechanisms of transformation of a normal cell to cancer, prediction of the risk of developing cancer, early detection, prevention, prognosis and therapy. Nearly all cancers arise from a single cell harboring a combination of inherited and/or somatic alterations in genetic material. Once initiated, cancer cells continuously evolve by acquiring additional and complex mutations in the genetic material leading to uncontrolled cell proliferation (cell cycle deregulation) and spreading to other organs (metastasis). The complexity of genetic aberrations includes changes in chromosome number and structure, single nucleotide changes, DNA methylation and modifications in non-coding RNA, among many others. These mutations affect protein coding genes, non-coding DNA and epigenetic modifications.

In the recent decades we have witnessed dramatic developments in the technologies available for analyzing genomes. Recent advances in genomic technologies and bioinformatics are providing crucial tools to understand the role of genetics in mechanisms of transformation, progression, and metastasis of cancer cells. These advances are paving ways to achieve the goal of personalized treatment of cancer. The course on Cancer Genetics will address most of these cutting-edge developments in cancer biology.

The course module is designed for:

This course is of interest to a wide variety of audiences including life-science students at graduate and postgraduate level, researchers studying the genetics of cancer, and clinicians involved with oncology.
Course Lectures

- **Genetics and management of inherited cancer predisposition**
  - Prof. Joshua Schiffman
    - University of Utah, USA

- **The cytogenetics of childhood acute leukemia**
  - Dr. Susana Raimondi
    - St. Jude Children’s Research Hospital, USA

- **Chromosome translocations and cancer**
  - Prof. Felix Mitelman
    - Lund University, Sweden

- **Acute myeloid leukemia: genetics, prognosis and treatments**
  - Prof. Stephen Nimer
    - University of Miami Health Care, USA

- **Genetic abnormalities in acute lymphoblastic leukemia**
  - Prof. Ching Hon Pui
    - St. Jude Children’s Hospital, USA

- **Molecular genetics of non-Hodgkin lymphoma**
  - Prof. Jude Fitzgibbon
    - University of London, UK

- **Genetics of breast and ovarian cancer**
  - Prof. Jeffrey Weitzel
    - City of Hope, USA

- **The genetics and genomics of familial renal carcinoma**
  - Prof. Eamonn Maher
    - University of Cambridge, UK

www.hstalks.com/biosci
<table>
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<tr>
<th>Lecture Title</th>
<th>Speaker Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genomics of lung cancer</td>
<td>Prof. Ramaswamy Govindan</td>
<td>Washington University in St. Louis, USA</td>
</tr>
<tr>
<td>The genetics of glioblastoma</td>
<td>Dr. Hai Yan</td>
<td>Duke University School of Medicine, USA</td>
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<tr>
<td>Genetics of tumor metastasis</td>
<td>Prof. Robert Weinberg</td>
<td>Whitehead Institute for Biomedical Research, USA</td>
</tr>
<tr>
<td>CML: genetic paradigm of targeted therapy</td>
<td>Prof. Michael W. Deininger</td>
<td>University of Utah, USA</td>
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<tr>
<td>The non-coding RNA revolution in the cancer society</td>
<td>Dr. George Calin</td>
<td>MD Anderson Cancer Center, USA</td>
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<tr>
<td>Role of molecular markers in guiding therapy in cancer</td>
<td>Prof. Joe Duffy</td>
<td>St Vincent’s University Hospital and University College Dublin, Ireland</td>
</tr>
<tr>
<td>Functional cancer genomics</td>
<td>Prof. Roderick Beijersbergen</td>
<td>Netherlands Cancer Institute, The Netherlands</td>
</tr>
<tr>
<td>Pharmacogenomics in cancer therapy</td>
<td>Prof. Sharon Marsh</td>
<td>University of Alberta, Canada</td>
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For each lecture the course offers tutorials, workshops, recommended reading, multiple-choice questions, and suggested exam questions with model answers.

### Exam Questions and Model Answers

**Question 1**
Not yet answered
Marked out of 1.00
Flag question
Edit question

Hereditary papillary renal cell carcinoma type 1 is a rare condition caused by constitutional mutations in the MET gene. What characterizes this condition from a molecular perspective and how does this impact on management?

**Question 4**
Not yet answered
Marked out of 1.00
Flag question
Edit question

Which of the following is not a recognized cause of inherited renal cell carcinoma?
Select one:
- a) Birt Hogg Dube syndrome
- b) Constitutional SDHD mutation
- c) Von-Hippel Lindau disease
- d) Constitutional BAP1 mutation
- e) Lynch syndrome

### Examples of Course Materials

- **Schmidt, L., Duh, F. M., Chen, F., Kishida, T., Glenn, G., Choyke, P., … Zbar, B. (1997). Germline and somatic mutations in the tyrosine kinase domain of the MET proto-oncogene in papillary renal carcinomas. Nature Genetics, 16(1), 68-73.**
How to access the course

Extracts of lectures can be viewed at hstalks.com/biosci/. The full length lectures can be viewed by all members of universities, colleges and medical schools currently subscribing to The Biomedical & Life Sciences Collection. Institutions that do not subscribe to The Biomedical & Life Sciences Collection may take annual licenses at US $2,000 covering an unlimited number of students.

Full supporting material: video lectures, material for tutorials (case studies, projects, workshops and recommended reading), multiple choice questions and suggested exam questions with model answers are provided to faculty members of subscribers.

To subscribe, obtain additional information and/or the additional learning material contact Dr. Eyal Kalie at eyalk@hstalks.com.

Upload to your VLE

The complete course (lectures and additional learning material) can be loaded into Moodle, Blackboard and other virtual learning environments.
HSTalks provides access to world class lectures by leading authorities from around the globe, in one online resource.

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