Instructors

Henrik Hansen
M.D., Ph.D. (University of Copenhagen, 2008/2015).
Clinical Oncology Fellow, Department of Oncology, National University Hospital (Rigshospitalet).
With DIS since 2011.

Bodil Engelmann
M.D., Ph.D. (University of Copenhagen, 2007/2014).
Clinical Oncology Fellow, Department of Oncology, Herlev Hospital.
With DIS since 2014.

Course Description:
This course offers an in-depth, clinically focused, examination of major cancer types. In order to get an understanding for the clinical reality surrounding solid tumors and cancer patients, overall themes will include classifications, biological foundations, diagnostics, specific therapies, and respective complications. Through journal clubs, students will evaluate the most recent clinical studies. Classes will also include transposed patient cases, as well as student presentations.

Learning Outcomes:
After successful completion of this course, students will be able to
Express knowledge about tumor biology, therapy and the most common solid tumors.
Explain the basic concepts of clinical research in oncology.
Appreciate that cancer is both a clinical and an experimental science in constant development.
Appreciate the importance and validity of the ‘established’ therapies.
Increase awareness of the impact of a cancer diagnosis for the individual patient.

Prerequisites:
One year of biology and one year of chemistry at the university level.
The Complexity of Cancer course is aimed at students with a documented academic interest in medicine.

Practical Course Information
Please make sure to read all the material assigned; the reading material has been carefully chosen and all of it is pertinent to your success in Complexity of Cancer. You have an obligation to your fellow classmates and yourself to come prepared to class. If you have questions or need clarification about readings or lecture material do not hesitate to speak up. The professors for this course have no office hours so please feel free to set up appointments with them via email. The professors’ emails are below; please feel free to also email program assistant Ryan Polito at

DIS Contacts
Lisbeth Borbye, Program Director
Ryan Polito, Program Assistant,
Science & Health Programs Office: Vestergade 10-B12
**Attendance**
You are expected to attend all DIS classes when scheduled, and we will actively monitor attendance. Allowances will be made in cases of illness, but you will need to email Henrik and Bodil in advance, and may be asked for a doctor’s note. If you miss multiple classes, the Office of Academic Support will be notified and they will follow-up with you to make sure that all is well.

**Field Studies/Work Shops**
Throughout the semester, you will have a workshop and a field study. Both are meant to provide you with new perspectives on topics being learned in class. These take place on Wednesdays so as not to interfere with your other classes. The first, a workshop, provides a relaxed atmosphere in which we will present the students with tools for reading, understanding and presenting scientific papers in oncology – tools we will use throughout the semester. The work shop/field studies for *Complexity of Cancer* are scheduled to take place on the following dates and at the following times, however further details will be divulged as the dates approach:

- **Wednesday, Jan 25** 8.30- 12.30
  Location: Classroom, V10-A32

- **Wednesday, March 8** 13.00-17:00
  Location: Section for Radiotherapy, Department of Oncology, Rigshospitalet

**Classroom Etiquette**
Access to the Internet can be a valuable aid in the classroom learning environment. Students are welcome to use laptops, smart phones, and other devices in order to explore concepts related to course discussions and topics only. Students are discouraged from using technology in ways that distract from the learning community (e.g. Facebook, texting, work for other classes, etc.). Doing so will influence your ability to perform optimal in class and hence influence your participation grade.

**Evaluation**
- Participation: 25%
- Tests (3 each 15%): 45%
- Final: 30%

**Tests and Final**
There will be three tests throughout the semester. These tests will consist of a mix of short answer questions, and short essay questions. The material covered in each test, will be all that has been covered prior to the test. Tests in class will generally last approximately 40-60 minutes depending on the amount of information covered. The final for this course will be cumulative and will be written in the same manner as the three tests. The final will be two hours in duration.

**Academic Honesty: Plagiarism and Violating the Rules of an Assignment**
DIS expects that students abide by the highest standards of intellectual honesty in all academic work. DIS assumes that all students do their own work and credit all work or thought taken from others. Academic dishonesty will result in a final course grade of “F” and can result in dismissal. The student’s home universities will be notified. DIS reserves the right to request that written student assignments be turned in electronic form for submission to plagiarism detection software. See the Academic Handbook for more information, or ask your instructor if you have questions.

**Disability Resources**
Any student who has a need for disability accommodations should contact the office of academic support (acadsupp@dis.dk) to coordinate this. Upon DIS approval, students should inform the instructor of accommodations within the first two weeks of class.
Assignments
During the course, the students are asked to present one scientific paper as a group presentation (in groups of 4-6 people) as part of a journal club. All students are expected to have read the papers and to be prepared for classroom discussions. The groups will present their work to the class, as a part of the day’s lecture, and their presentation will be part of the material covered in the tests. The groups will also be asked to prepare a simulated consultation informing a patient on a specific treatment setup.

Canvas
Canvas is a web-based system that allows you to access course resources and communicate with your classmates and faculty. To access Canvas, you can go to the DIS homepage and click the ‘Canvas’ link on the bottom of the website, or go to: https://canvas.disabroad.org/login/canvas. You can also download the Canvas App (By: Instructure) on iPhone and Android mobile smart phones.

Readings:
- Reading on Canvas (https://canvas.disabroad.org/login/canvas):
<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic + Reading Material</th>
<th>Lecturer(s)</th>
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<tbody>
<tr>
<td>1 Thursday, January 19</td>
<td>Welcome and Introduction to the course Reading: Textbook Souhami, R. &amp; Tobias, J. Cancer and its management, 5th ed. Blackwell Publishing. Chapter 1</td>
<td>Bodil, Henrik</td>
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<tr>
<td>2 Monday, January 23</td>
<td>Cancer Biology I Reading: (textbook) Biology of Cancer Chapter 3 (on Canvas) Rubin. Neoplasia</td>
<td>Henrik</td>
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<td>3 Wednesday, Jan 25</td>
<td>Field Study I: Workshop: How to read scientific papers in oncology Phases in oncologic drug development and testing Basic statistics Coffee break Introduction to group work Reading: (textbook) Epidemiology, cure, treatment, trials and screening Chapter 2</td>
<td>Bodil, Henrik, Ivan Vogelius Guest Lecture</td>
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<tr>
<td>4 Thursday, January 26</td>
<td>Cancer Biology II Election of Class Reps Reading: (textbook) Biology of Cancer Chapter 3 (on Canvas) Rubin. Neoplasia</td>
<td>Henrik</td>
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<tr>
<td>5 Monday, January 30</td>
<td>Hereditary Cancer (Cancer Biology III) Reading: (textbook) Biology of Cancer Chapter 3 (on Canvas) Rubin. Neoplasia</td>
<td>Bodil</td>
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<td>6 Thursday, February 2</td>
<td>TEST 1</td>
<td>Bodil</td>
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**Core Course Week**

*February 6-10*

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<th>Date</th>
<th>Lecture Topic + Reading Material</th>
<th>Lecturer(s)</th>
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<tr>
<td>6 Monday, February 13</td>
<td>Anticancer Therapy I – General principles, chemotherapy Reading: (textbook) Systemic treatment for cancer Chapter 6</td>
<td>Henrik</td>
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<tr>
<td>7 Thursday, February 16</td>
<td>Anticancer Therapy II – Radiotherapy Reading: (textbook) Systemic treatment for cancer Chapter 6</td>
<td>Henrik</td>
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<tr>
<td>8 Monday, February 20</td>
<td>Anticancer Therapy III- Chemotherapeutics, group work, presentations Reading: (textbook) Systemic treatment for cancer Chapter 6</td>
<td>Bodil</td>
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<tr>
<td>9 Thursday, February 23</td>
<td>Anticancer Therapy IV – Targeted therapy + group work Reading: (textbook) Systemic treatment for cancer Chapter 6</td>
<td>Bodil</td>
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### Long Study Tour / Break I
February 27 – March 3

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<th>Day</th>
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<th>Activity</th>
<th>Reading</th>
<th>Instructors</th>
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<tbody>
<tr>
<td>10</td>
<td>Monday, March 6</td>
<td>Anticancer Therapy V – Immunotherapy + group work</td>
<td>(textbook) Systemic treatment for cancer Chapter 6</td>
<td>Bodil</td>
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</tbody>
</table>
|     | Wednesday, March 8 | **Field Study II**  
**Location:** Section for Radiotherapy, Department of Oncology, Rigshospitalet | | Henrik, Bodil |
| 11  | Thursday, March 9 | Cancer Staging and therapy response evaluation | textbook chapter 4, RECIST paper on Canvas | Bodil |
| 12  | Monday, March 13 | **Test 2** | | Bodil |
| 13  | Thursday, March 16 | Prostate Cancer  
Journal Club: group 4  
Reading: (textbook) Genitourinary cancer Chapter 18 | | Henrik |

### Long Study Tour / Break II
March 20-24

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Activity</th>
<th>Reading</th>
<th>Instructors</th>
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</table>
| 14  | Monday, March 27 | Lung Cancer  
Journal Club: group 3  
Reading: (textbook) Tumors of the lung Chapter 12. | | Bodil |
| 15  | Thursday, March 30 | Breast Cancer  
Journal Club: group 1  
Reading: (textbook) Breast cancer Chapter 13 | | Bodil |
| 16  | Monday, April 3 | Colorectal Cancer  
Journal Club: group 6  
Reading: (textbook) Tumors of the large and small bowel Chapter 16 | | Bodil |
| 17  | Thursday, April 6 | Cancer Screening  
Reading: On Canvas | My von-Euler Chelpin  
*Guest Lecture*  
Bodil | |
| 18  | Monday, April 10 | **TEST 3** | | Henrik |

### Break
April 12-17

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<th>Day</th>
<th>Date</th>
<th>Activity</th>
<th>Reading</th>
<th>Instructors</th>
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| 19  | Thursday, April 20 | Gynecologic cancer  
Reading: (textbook) Genitourinary cancer Chapter 18 | | Henrik |
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Instructor(s)</th>
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<tr>
<td>20</td>
<td>Monday, April 24</td>
<td>The Cancer Patient</td>
<td>Anders Larsen</td>
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<td>Guest Lecture Henrik</td>
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<td>21</td>
<td>Thursday, April 27</td>
<td>Patient Cases</td>
<td>Bodil + Henrik</td>
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<td>22</td>
<td>Monday, May 1</td>
<td>Palliative Care</td>
<td>Henrik</td>
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<td>Reading: TBA</td>
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<td>23</td>
<td>Thursday, May 4</td>
<td>Wrap-up and course evaluation</td>
<td>Bodil + Henrik</td>
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<td>Thursday, May 11</td>
<td><strong>Final Exam: Complexity of Cancer</strong></td>
<td>DIS Staff</td>
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<td>Time: 15.00-17.00</td>
<td>Location: V10-A32</td>
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