Introduction to medicine for science and technology students MFEL3010

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What is MFEL3010?

• It’s a contrast subject, considered suitable for 3rd to 4th year students.

• It’s not “Medicine for non medical students” MFEL 1010, which is a perspective subject suitable for first year students.
<table>
<thead>
<tr>
<th><strong>MFEL1010:</strong></th>
<th><strong>MFEL3010:</strong></th>
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</thead>
<tbody>
<tr>
<td>• Textbook: Essentials of anatomy and physiology</td>
<td>• Textbook: Human physiology</td>
</tr>
<tr>
<td>• Video lectures</td>
<td>• Live lectures</td>
</tr>
<tr>
<td>• Anatomy, physiology and general health</td>
<td>• Fewer themes, more in depth limited to physiology</td>
</tr>
<tr>
<td>• Insights into health care</td>
<td>• Medical scientific methods, and medical technology</td>
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<tr>
<td>• Mid term MCQ exercises (on the net)</td>
<td>• Mid term essay</td>
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<tr>
<td>• MCQ exam</td>
<td>• MCQ exam; (different)</td>
</tr>
<tr>
<td>• 7.5 ECTS credits</td>
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</tr>
<tr>
<td>• Full credit reduction against MFEL3010</td>
<td>• Full credit reduction against MFEL1010</td>
</tr>
<tr>
<td>• Course given both terms</td>
<td>• Course given only fall</td>
</tr>
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</table>
Which course to choose?

- The new course MFEL3010 is the course supposed to be for master levels, and will probably be the mandatory course in technological study programs, but that is decided by the study program administration at each faculty, not by the faculty of medicine.
- The course MFEL1010 is a perspective subject considered to be suitable for first years students.
- The curriculum sizes are similar
- MFEL 3010 must be considered more in depth, in fewer themes, but also more demanding.
Aims of the course:

• Physiology
  – To give an understanding of principles of bodily functions in health and disease (pathophysiology).
  – Illustrated by cellular physiology and the main organ systems
Topics in physiology:

• Cell physiology – Cancer
• Blood and immunology
• Respiratory (lung) physiology
• Renal (Kidney) physiology
• Intestinal (Bowel) physiology
• Circulatory (Heart and vessels) physiology
• Exercise (training) physiology
Aims of the course:

• Technology
  – To show how modern technology interacts with physiology in diagnosis and treatment of disease
Topics in medical technology:

- DNA analyses (cell physiology)
- Respirator treatment (Lung physiology)
- Dialysis (Kidney)
- Endoscopy (Intestinal)
- Invasive treatment of heart disease (Circulatory)
- These topics may be presented as part of the physiology lectures, or separate

- General medical imaging:
  - X-ray
  - Nuclear imaging
  - MR
  - Ultrasound
Aims of the course:

• **Scientific methods**
  – To present the scientific methods that are specific to medicine
Topics in scientific methods:

• Diagnostics
  – How good is a test result really?

• Clinical studies
  – How can we prove that a treatment is effective?

• Epidemiology
  – How is the occurrence of disease connected to other factors
  – Inferences of causality (probability)
Textbook:

- Fox: Human physiology,
- McGrawHill, 12th ed or later
- **Core curriculum will be chapters 2 – 5, 7 – 8 and 13 – 18.** (437 pages). Cursory curriculum, which may be usefull to support the core, are chapters 1, 9, 12.

- The rest of the chapters are for the specially interested and for completeness, but is not curriculum.
Lectures:

- Some lectures cover topics in physiology, also covered in the textbook, and are considered supportive.
- Some lectures cover topics that are not covered by the textbook.
- All lectures are core curriculum.
- Lectures are at present not available on video.
- Handouts of the presentations will be made available via It’s learning
Lecture plan is available on It’s learning:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Time</th>
<th>Theme</th>
<th>Lecturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>August 26</td>
<td>12.15 - 13.00</td>
<td>Introduction</td>
<td>Asbjørn Staylen</td>
</tr>
<tr>
<td>36</td>
<td>September 5</td>
<td>12.15 - 13.00</td>
<td>The heart and circulation</td>
<td>Asbjørn Staylen</td>
</tr>
<tr>
<td>37</td>
<td>September 12</td>
<td>12.15 - 13.00</td>
<td>Cells, tissues and organs</td>
<td>Ingunn Rakke</td>
</tr>
<tr>
<td>38</td>
<td>September 19</td>
<td>12.15 - 13.00</td>
<td>Respiratory physiology</td>
<td>Sigurd Stemshammer</td>
</tr>
<tr>
<td>39</td>
<td>September 26</td>
<td>12.15 - 13.00</td>
<td>Imaging: MR, physical principles</td>
<td>Pål Erik Grøn</td>
</tr>
<tr>
<td>40</td>
<td>October 3</td>
<td>12.15 - 13.00</td>
<td>Imaging: Ultrasound, basic principles</td>
<td>Hans Tønseth</td>
</tr>
<tr>
<td>41</td>
<td>October 10</td>
<td>12.15 - 13.00</td>
<td>Imaging: X-ray and CT</td>
<td>Asbjørn Staylen</td>
</tr>
<tr>
<td>42</td>
<td>October 17</td>
<td>12.15 - 13.00</td>
<td>The kidneys</td>
<td>Stein Hallan</td>
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<tr>
<td>43</td>
<td>October 24</td>
<td>12.15 - 13.00</td>
<td>Blood and immunity</td>
<td>Astrid Lægreid</td>
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<tr>
<td>44</td>
<td>October 31</td>
<td>12.15 - 13.00</td>
<td>Imaging: MR, physical principles</td>
<td>Hanne Løhn</td>
</tr>
<tr>
<td>45</td>
<td>Nov. 7</td>
<td>12.15 - 13.00</td>
<td>The digestive system</td>
<td>Ame Sandvik</td>
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<tr>
<td>46</td>
<td>Nov. 14</td>
<td>12.15 - 13.00</td>
<td>DNA analysis</td>
<td>Anna Ryøe</td>
</tr>
<tr>
<td>47</td>
<td>Nov. 21</td>
<td>12.15 - 13.00</td>
<td>Coronary heart disease, Angiography and Intervention</td>
<td>Rune Woldt</td>
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Lecture plan is available on It’s learning:

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<td>35</td>
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<td>Introduction</td>
<td>Asbjørn Støylen</td>
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<td></td>
<td></td>
<td>13.15 - 14.00</td>
<td>Scientific methods in medicine: Diagnostics</td>
<td>Asbjørn Støylen</td>
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<td></td>
<td></td>
<td>14.15 - 15.00</td>
<td>Scientific methods in medicine: Clinical studies</td>
<td>Asbjørn Støylen</td>
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<td>Membrane function and ECG</td>
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<td>14.15 - 15.00</td>
<td>Muscle function, heart and skeletal</td>
<td>Asbjørn Støylen</td>
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Assignment

• There will be an essay assignment.
  – The theme is available on its learning.
• Delivery is mandatory
• Deadline for delivery is: Friday October 25th kl 1600, delivery window closes at deadline
• Essays will be evaluated before mid November
• Delivery failure or rejection will result in being barred from the fall exam
The exam:
The exam: **December 9th**.

- **Date:**
  - *Monday December 9th.* 0900, 3 hours

- **Deadline for registration:** September 15th.

- **MCQ in English**
  - 40 questions, with 4 alternative answers, only one correct
  - Each correct answer gives 2.5 points, for a total maximum of 100 pts. There are no minus points for wrong answers.

- **The grades are passed / failed as on the rest of the medical faculty**

- **Minimum 65% (= 65 points = 26 correct answers) is the limit for passing**

- **Previous exams available on It’s learning**
Safety net:
Continuation

• Continuation exam will be Friday, may 16th 2014

• Only available for those who registered for the exam in december, and failed or have valid absence (as determined by the central exam office at NTNU).
Evaluation of the course

- So far, little interest in reference groups.

- Evaluation in full study group on the last day of term has proved fruitful. The course has been modified accordingly, each year.
Hope you’ll have fun