Master Molecular biosciences - Frontiers 2
Core competencies week
WS 2016/17

Coordinator: Prof. Dr. Alexis Maizel

Lectures: 8:15am

Schedule:

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<tr>
<th>Date</th>
<th>Room</th>
<th>Topic</th>
<th>Lecturer</th>
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<tr>
<td>Monday 9.01</td>
<td>HS2 Theoretikum</td>
<td>Statistics I</td>
<td>Dr. J. Schott (ZMBH)</td>
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<td>Tuesday 10.01</td>
<td>HS2 Theoretikum</td>
<td>Science Communication</td>
<td>Dr. M. Milsom (DKFZ)</td>
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<td>Wednesday 11.01</td>
<td>Hörsaal Ost Chemie (INF 252)</td>
<td>Scientific publishing</td>
<td>Dr. B. Pulverer (Editor in chief, EMBO Press)</td>
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<td>Thursday 12.01</td>
<td>HS2 Theoretikum</td>
<td>Scientific ethic</td>
<td>Dr. G. Grossmann (COS)</td>
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<td>Friday 13.01</td>
<td>Hörsaal Ost Chemie (INF 252)</td>
<td>Statistics II</td>
<td>Dr. J. Schott (ZMBH)</td>
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Topics (not in order - tentative).

1. **Scientific publishing**: EMBO J editor

2. **Ethics in Science**:  
   - fraud prevention (G. Grossmann) —> Thu (or wed).  
   - animal welfare and human samples (medical faculty committee / ??)

3. **Communicating your Science** (Alexis / Freddy (?) / m.milsom@hi-stem.de):  
   - Writing:  
     - Learn how to write concisely  
     - Publishing:  
       - Which journal?  
       - Authorship  
       - Grant writing: hypothesis-driven vs. discovery  
       - How to review a paper/proposal?
   - Speaking:  
     - Dos and don'ts of oral presentation
   - Poster & Figures:  
     - Digital images processing  
     - Figure preparation, data handling

4. **Statistics** (Johanna Schott):  
   - Mean, mode, median  
   - Measures of variation  
   - Meaning (or not) of significance tests - p-value and p-hacking  
   - Displaying data: boxplot, bar graph, scatter graph, when to join the points.  
   - Power calculation  
   - Analysing large datasets  
   - Role in planning: decide on replicates at start of experiment

5. **Designing science** (Dr. Sita Schanne, M.A. / schanne@uni-heidelberg.de /???)  
   - Aim to test or disprove your hypothesis.  
   - Positive and negative controls  
   - Project management  
   - Accepting all data and not repeating till you get what you want  
   - Learning when to stop