

| Week | Date | Time | Place | Lecture (green) / Exercise (white) | Doran's chapter |
|------|------------|-------------|-----------|---|-----------------|
| 9 | 01/03/2022 | 10:15-11:45 | Zoom | 1. Introduction | 1;3 |
| | 3.3. | 12:30-14:00 | Zoom | Exercise 1 (growth kinetics) | 3;12 |
| 10 | 8.3. | 10:15-11:45 | Zoom | 2. Cell as production unit | 3;4;5 |
| | 10.3. | 12:30-14:00 | Zoom | Exercise 2 (stoichiometry bioprocesses) | 4 |
| 11 | 15.3. | 10:15-11:45 | Zoom | 3. Cultivation methods | 14 |
| | 17.3. | 12:30-14:00 | Zoom | Exercise 3 (mass balances) | 4 |
| 12 | 22.3. | 10:15-11:45 | Zoom | 4. Bioreactors | 14 |
| | 24.3. | 12:30-14:00 | Zoom | Exercise 4 (chemostat) | 14 |
| 13 | 29.3. | 10:15-11:45 | Zoom | 5. Aseptic working | 9;14 |
| | 31.3. | 12:30-14:00 | Zoom | Exercise 5 (sterilization) | 12;14 |
| 14 | 5.4. | 10:15-11:45 | Zoom | 6. Mass transfer | 7;8;10 |
| | 7.4. | 12:30-14:00 | Zoom | Exercise 6 (kLa calculations) | 10 |
| 15 | 12.4. | | | (Exam week, no lectures) | |
| | 14.4. | | | (Exam week, no exercises) | |
| 16 | 19.4. | 10:15-11:45 | Zoom | 7. Unit operations in bioprocesses | 11 |
| | 21.4. | 12:30-14:00 | Zoom | Exercise 7 (filtration) | 11 |
| 19 | 10.5. | 13:00-16:00 | MyCourses | Course exam | |
| | | | | | |

Course book: Doran: Bioprocess engineering principles. E-book link:

<http://libproxy.aalto.fi/login?url=http://www.sciencedirect.com/science/book/9780122208515>

- Chapter 1 pages 3-11
- Chapter 3 pages 61-73
- Chapter 4 pages 87-127
- Chapter 5 pages 156-170
- Chapter 7 pages 201--222
- Chapter 8 pages 255-287
- Chapter 9 pages 333-337; 368-369
- Chapter 10 pages 390-419
- Chapter 11 pages 445-460; 493-498; 512-521
- Chapter 12 pages 635-657
- Chapter 14 pages 761-780; 789-834

Together 287 pages

Exercises, quizzes and lecture slides make up the rest of the course material

Contacts: tero.eerikainen@aalto.fi