Universität Ulm | 89069 Ulm | Germany

Medizinische Fakultät
Institut für Epidemiologie und Medizinische Biometrie
Leitung: Prof. Dr. D. Rothenbacher
http://www.uni-ulm.de/med/epidemiologie-biometrie

Prof. Rainer Muche
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PD Dr. Benjamin Mayer
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29-NOV-2017

Module: Clinical Trials

General information:

Week 1 (DEC 4th – DEC 8th):	***Lectures Mon-Fri 8.30am - 10.00am and 10.30 - 11.45am***
Week 2 (DEC 13th and DEC 15th):	***Case-study presentations on Wednesday 8.30am - 12.00pm***
	Written exam on Friday 10am - 11am

Rooms:	***Mo 4th, Tue 5th, Wed 6th, Thu 7th:***	***O29/1001***
	Fri 8th:	***N23/2622***
	Wed 13th (students' talks):	***O29/1001***
	Fri 15th (exam):	***O23/2611***

Course material online:

http://www.uni-ulm.de/med/epidemiologie-biometrie/lehre/molekularmedizin/mol-clinical-trials.html

Lecture content:

Monday, Dec 4th, 2017:
Introduction, Course schedule, What is a clinical trial?
Dr. Kathrin Hohl
Overview of the Module, assigning topics to groups for presentation
Aims, concept, fundamentals of clinical trials

Planning a Study and Recruitment of study participants
Dr. Kathrin Hohl
Phases of clinical trials, Study protocol, Statistical hypotheses, sample size, randomisation

Tuesday, Dec 5th, 2017:

Regulatory aspects conducting a clinical trial

Dr. Kathrin Hohl

Study documents (Trial Master File)
Responsibilities and tasks of people and institutions involved in clinical trials
Official rules for clinical trials (Guidelines): ICH-GCP, Declaration of Helsinki, AMG

Data collection and Quality Control

PD Dr. Benjamin Mayer

Types of data and their recording (Case Report Forms)
Data Management, Data Checks and correction (audit trail)
Database: structure and design, database-close and data release
Software for data and project management in clinical trials (e.g. audit trail)
Coding of Adverse events and concomitant medication
Quality assurance: Monitoring, Audits

Wednesday, Dec 6th, 2017:

Analyzing a Study and Issues in Data Analysis (I)

PD Dr. Benjamin Mayer

Statistical considerations (ICH E9)
Special Issues:
- Analysis populations (Full Sample Analysis, Per Protocol Analysis),
- missing values
- graphical presentations

Analyzing a Study and Issues in Data Analysis (II)

PD Dr. Benjamin Mayer

Statistical considerations (ICH E9)
Special Issues:
- adjustment for confounder
- subgroup analysis
- multiple testing

Thursday, Dec 7th, 2017:
Reporting and Interpreting the Study Results
Dr. Kathrin Hohl
ICH-E3: Structure and content of Clinical Study Reports
Description of patients in the study (external validity) and comparability of groups (internal validity)
Efficacy, safety (unexpected events, laboratory measures)
Explorative data analysis (EDA), sources of bias

Assessing publications
Dr. Kathrin Hohl
Assessing publication based on study design, validity of results, presentation of results

Friday, Dec8th, 2017:
Scientific appraisal of clinical trial reports
PD Dr. Benjamin Mayer
PICO assessment (Population, Intervention, Control, Outcome)
Clinical trial registries and the ALLTRIALS initiative
Medical science in the public press

Beyond the individual clinical trial
PD Dr. Benjamin Mayer
Planning drug development
Systematic reviews for Evidence Based Medicine
Forest plot and Funnel plot

Wednesday, Dec 13th, 2017, 8:30 – 11:45 am:
CASE-Study presentations:
Dr. Kathrin Hohl & PD Dr. Benjamin Mayer
Student presentations (all groups)
All presentations need to be uploaded to the course homepage prior to presentation

Friday, Dec 15th, 2017; 10 – 11 am:
Written examination:
Dr. Kathrin Hohl & PD Dr. Benjamin Mayer

Examination

The examination of the course is based on the following:

- **Oral presentation** on 13-DEC-2017 (see next page), and the upload of the group's presentation (25% of the final mark)
- **Written test** on 15-DEC-2017 (75% of the final mark)

Student presentations

Group	1st round, groups 1-3 *(13-DEC-2017, 8.30am - 10.00am)*	2nd round, groups 4-5 *(13-DEC-2017, 10.30am - 12.00pm)*
1	TGN 1412: Overview on drug & trial • Drug properties and planning of the trial • Conduct and results • Interpretations and discussions	
2	Implications of BIA 10–2474 clinical trial • What happened, why? • Implications for FIM	
3	Dabigatran • RE-LY study • Different indications • Dabigatran reversal	
4		CAPRIE: Treatment effect in subgroups • Homogeneity in subgroups • ICH E9
5		Drug transporter studies • Overview on published studies • Results of patient trials in detail

Each group consists of 4-5 students.
Each student presents 5 min on its own as part of the group's presentation.

All presentations need to be uploaded to the course homepage, the names of all group members shall be given on the title page. For the upload of student presentations, please contact *iris.lichtblau@uni-ulm.de* or *bettina.mack@uni-ulm.de* .

Title of Module: Aspects of Molecular Medicine	
Course	Title: **Clinical Trials** Number: MOMEm0070
Study Programme:	Master degree in Molecular Medicine
Responsible Lecturer:	Prof. Dr. Rainer Muche
Further Lecturers:	Dr. Kathrin Hohl, PD Dr. Benjamin Mayer
Study Objectives:	Students should - Know the general outline of pre-clinical and clinical drug development - Identify trial phases of the development of drugs - Summing up the main steps in planning, conducting, monitoring and reporting clinical trials and their objectives - Distinguish prospective and retrospective studies - Identify the clinical trial protocol as the main source for planning, conducting and reporting - Provide the importance of randomization and blinding to ensure the structural and observational equality of the treatment groups - Know different types of randomization techniques - Know the CRF as the basis of data collection - Provide reasoning for prospectively planning the statistical analysis - Discuss the importance of the ITT analysis - Describe the PICO system to critically appraise reports of trials - Find studies in clinical trial registries (ISRCTN, clinicaltrials.gov etc.) - Name measures for quality assurance
Module Contents:	- Planning a trial - Aspects of performing a trial - Aspects of data management and analysis of trials - Reporting and appraising clinical trials - Application to examples in early clinical trials
Literature:	- L.M. Friedman, C.D. Furberg, D.L. DeMets: Fundamentals of Clinical Trials (5th Ed.). Springer, New York, 2015 - Wang D, Bakhai A. Clinical Trials - A Practical Guide to Design, Analysis, and Reporting. Remedica Publishing. 2006 - D. Machin, M.J. Campbell. Design of studies for medical research, Wiley 2005 - K.F. Schulz, D.G. Altman, D. Moher: CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. BMJ 2010;340:c332
Classification:	Compulsory course
Prerequisites:	BSc degree in Life Sciences
Teaching methods:	Lecture, seminar
Examinations:	- 1 group presentation - Written examination
ECTS-Points:	5
Grade composition:	Written examination 75%, presentation 25%
Length of the Module:	2 weeks (in blocks)
Usability:	MSc course of studies Molecular Medicine, interested PhD students
Date and Capacity:	30 students per semester
Semester	Winter term