2 Courses
as part of the MBA Training within the
EU - Tempus AHEAD Project (JEP-19009-2004)
25.09.-29.09.2006 Zagreb

Thesis Project Consultation and Applied Quantitative Methods

Prof. Dr. Reiner Doluschitz[1]

Clemens Morath, MSc.[1]

Dipl.-Sozialw. Jana-Rückert John[2]

University of Hohenheim

1) Department of Farm Management (410C)

Computer Applications and
Business Management in Agriculture

2) Department for Social Sciences in Agriculture (430C)

Rural Sociology with Gender Studies

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Expected achievements

- Principles of scientific working
- Thesis project consultation
- Applied quantitative methods for empirical research
- Team working skills
- Initiation of thesis work

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Introduction and Overview

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Subunit
Computer Applications and Business Management in Agriculture

1 Staff

2 Teaching

3 Research

- Prof. Dr. Reiner Doluschitz
- Renate Bayer
- Dr. Diana Ebersberger
- Dr. Frank Bode
- Dipl.-Ing. sc.agr. Pamela Bansbach
- Johanna Fick, MSc.
- Clemens Morath, MSc.
- Michael Roth, MSc.
- Markus Emmel, MSc.
- Zlatan Vassilev; phD-Student

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Subunit
Computer Applications and Business Management in Agriculture

1 Staff

2 Teaching

3 Research

- Business Management in Agriculture
- Agricultural Informatics
- Environmental Management
- Precision Agriculture
- GIS
- Food Supply Chain Management
- **Project Module**
- International Research Training Group „Sustainable Resource Use in North China“

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Subunit
Computer Applications and Business Management in Agriculture

1 Staff

2 Teaching

3 Research

- Sustainable Agriculture in the North China Plain
- IT Food Trace
- Management concepts
- E-Business
- Environmental and quality management at enterprise level
- GIS-based environmental management
- Optimal farming structure and management systems for Bulgarian agricultural sector (CAP)

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Sino-German Research Training Group Sustainable Resource Use in North China

- **Problem Situation**

  In the North China Plain, high production intensities and yields entail environmental problems

- **Research Hypothesis**

  Adjustments in cropping systems provide potential for sustainable resource use on a high yield level

- **Objectives**

  - Analysing and modeling material flows in agricultural systems
  - Optimising and modeling cropping systems
  - Farm level, regional and sectoral assessment of current and improved cropping systems

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Sino-German Research Training Group Sustainable Resource Use in North China

- **Organisation**
  - 11 subprojects with Chinese and German project leader and PhD students/Postdocs
  - 3 experimental sites located in the North China Plain (close to Beijing, WuQiao, QuZhou)
- **Study Program on Modeling Issues**
  - for German and Chinese PhD students,
  - block seminars held alternately in Beijing and Stuttgart
  - invitation of international guest scientists
- **Designated Duration**

  9 years (2 phases, 4.5 years each)

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IT Food Trace

- **Since June 2006**
- **Financed by BMBF (Federal Ministry of Education and Research)**
- **Development of an IT-solution for quality assurance and traceability in dynamic food chains for animal products**

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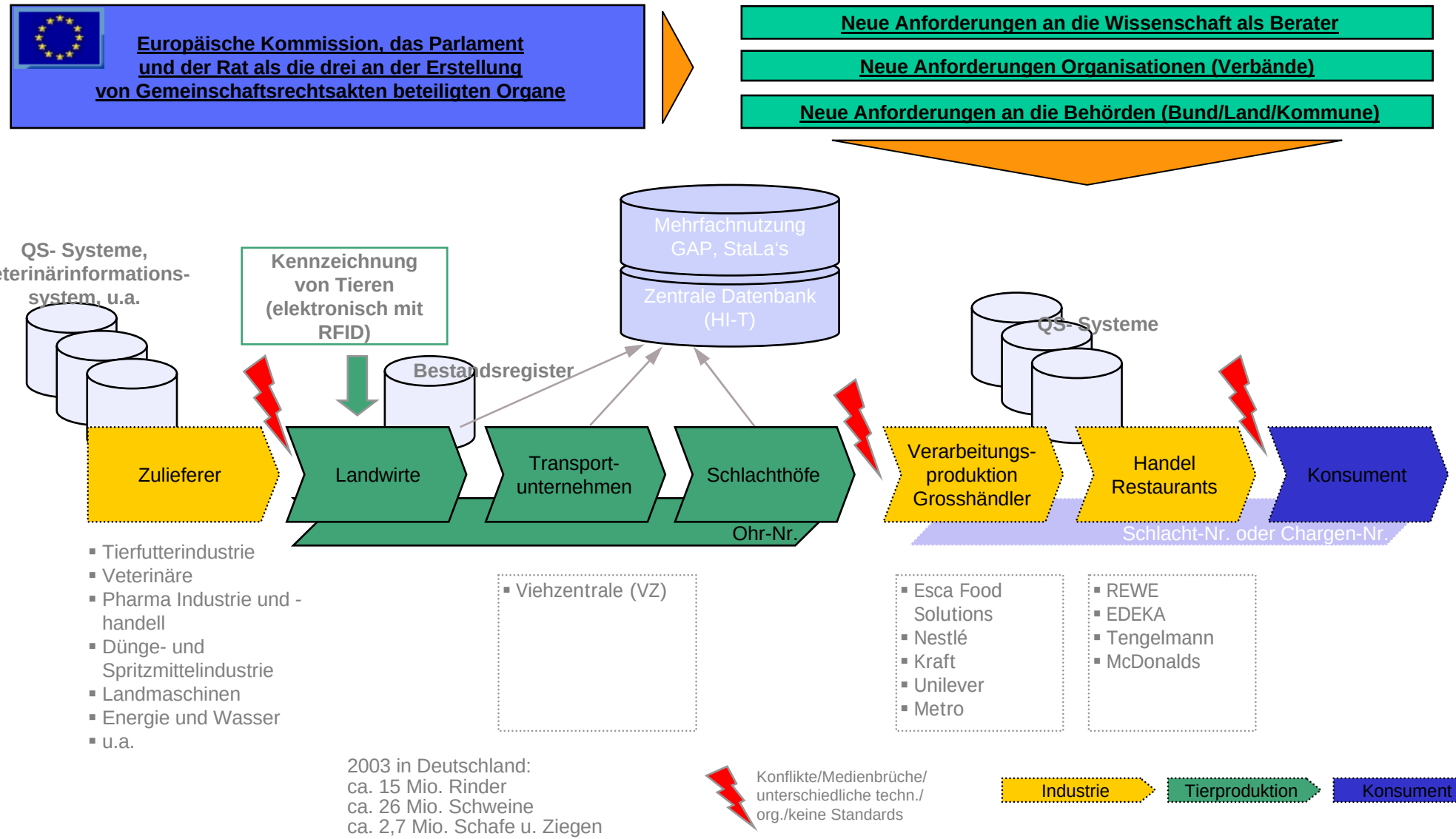
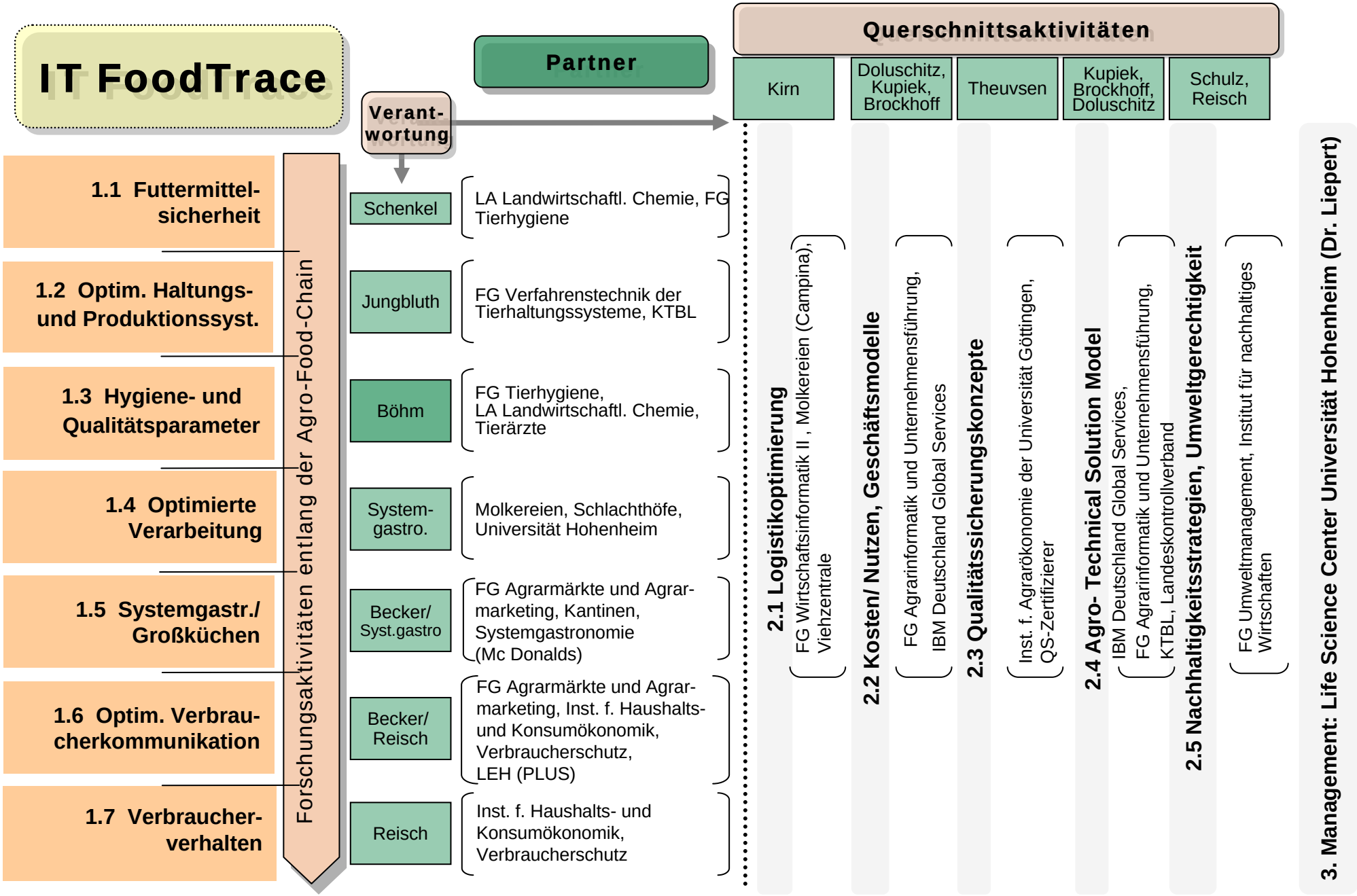
IT Food Trace
Overview of EU regulations and implementation and realisation




IT FoodTrace
Partner
Querschnittsaktivitäten
Verant-wortung
Kirn
Doluschitz, Kupiek, Brockhoff
Theuvsen
Kupiek, Brockhoff, Doluschitz
Schulz, Reisch
1.1 Futtermittel-sicherheit
1.2 Optim. Haltungs- und Produktionssyst.
1.3 Hygiene- und Qualitätsparameter
1.4 Optimierte Verarbeitung
1.5 Systemgastr./ Großküchen
1.6 Optim. Verbrau-cherkommunikation
1.7 Verbraucher-verhalten
Forschungsaktivitäten entlang der Agro-Food-Chain
Schenkel
LA Landwirtschaftl. Chemie, FG Tierhygiene
Jungbluth
FG Verfahrenstechnik der Tierhaltungssysteme, KTBL
Böhm
FG Tierhygiene, LA Landwirtschaftl. Chemie, Tierärzte
System-gastro.
Molkereien, Schlachthöfe, Universität Hohenheim
Becker/ Syst.gastro
FG Agrarmärkte und Agrar-marketing, Kantinen, Systemgastronomie (Mc Donalds)
Becker/ Reisch
FG Agrarmärkte und Agrar-marketing, Inst. f. Haushalts- und Konsumökonomik, Verbraucherschutz, LEH (PLUS)
Reisch
Inst. f. Haushalts- und Konsumökonomik, Verbraucherschutz
2.1 Logistikoptimierung
FG Wirtschaftsinformatik II , Molkereien (Campina), Viehzentrale
2.2 Kosten/ Nutzen, Geschäftsmodelle
FG Agrarinformatik und Unternehmensführung, IBM Deutschland Global Services
2.3 Qualitätssicherungskonzepte
Inst. f. Agrarökonomie der Universität Göttingen, QS-Zertifizierer
2.4 Agro- Technical Solution Model
IBM Deutschland Global Services, FG Agrarinformatik und Unternehmensführung, KTBL, Landeskontrollverband
2.5 Nachhaltigkeitsstrategien, Umweltgerechtigkeit
FG Umweltmanagement, Institut für nachhaltiges Wirtschaften
3. Management: Life Science Center Universität Hohenheim (Dr. Liepert)

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Introduction / Objectives

- ✓Agribusiness related research an analysis
- ✓applying methods of empirical social and economic research
- ✓team work (2-3 students)
- ✓prepare and work out a questionnaire
- ✓presentation, defence and discussion

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Introduction / Module Structure

Thesis Project Consultation

Prof. Dr. Reiner Doluschitz

Clemens Morath, M.Sc

Applied Quantitative Methods

Dipl.-Sozialw. Jana Rückert-John

Team Work Sessions

Clemens Morath, M.Sc

Dipl.-Sozialw. Jana Rückert-John

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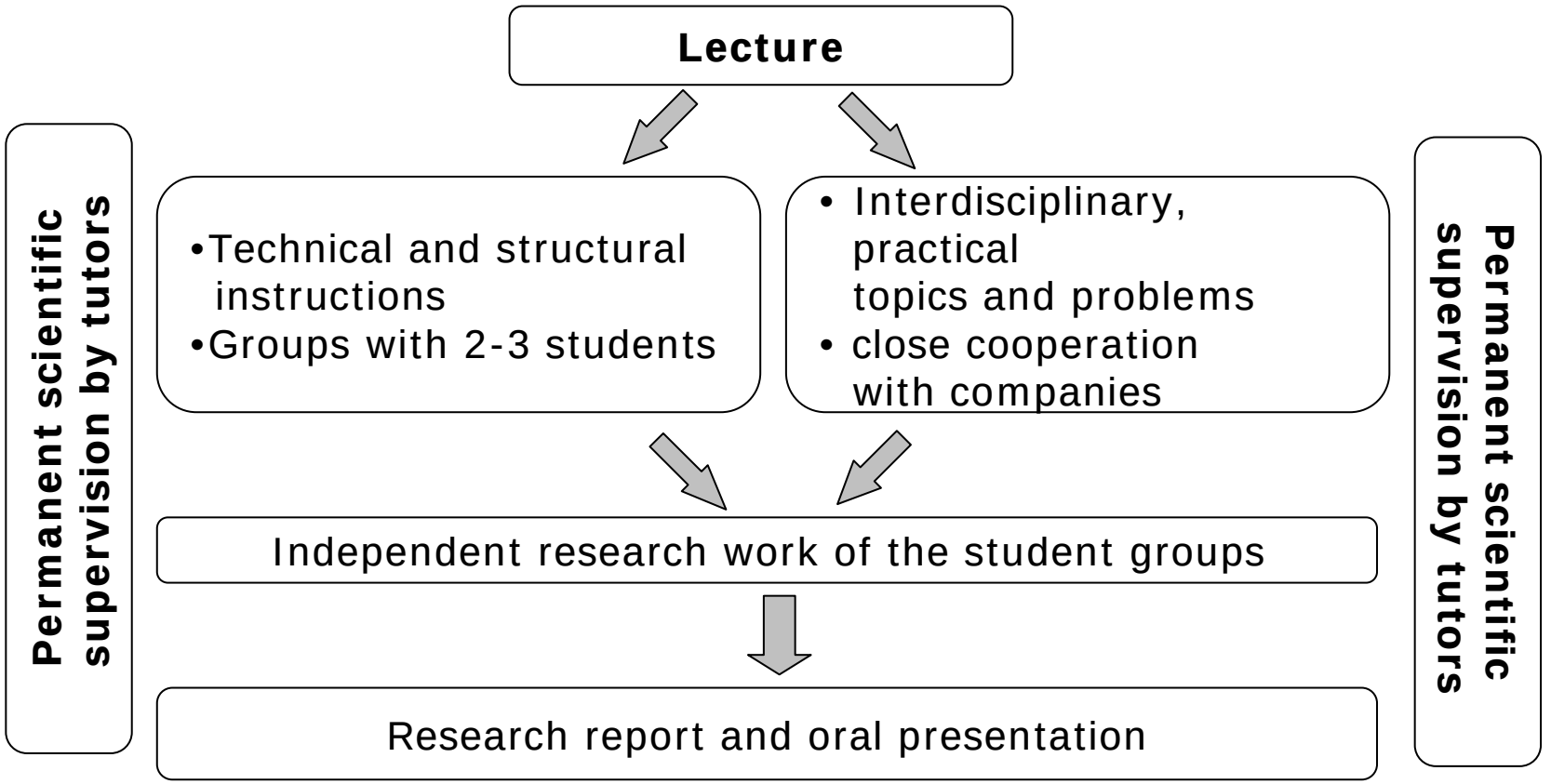
Introduction / Module Structure



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Introduction / Module Structure

Thesis Project Consultation/ Contents addressed

- **Principles of Scientific Research**
  - Methods
  - How to choose a topic
- **Structure of scientific papers and thesis texts**
  - How to write scientific papers
  - How to present the results
- **Agribusiness**
- **Quality Management**
- **Team work**
  - Interactive and supported team work sessions

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Introduction / Module Structure

Applied Quantitative Methods

- **Research Strategies**
  relationship between theory and research -> quantitative and qualitative research strategies
- **Research Designs**
  as a framework for the collection and analysis of data (Experimental, cross-sectional, longitudinal design, case study, comparative design)
- **Sampling**
  What kind of population is suited to the investigation of the topic? -> probability and non-probability samples
- **Concepts and their measurement**
  operational definition of my research question and the hypothesis -> What is a concept? What is an indicator?
- **Questionnaire**
  advantages and disadvantages, designing, asking questions, pre-testing-questions

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Introduction / Examination

Thesis Project Consultation

⇨ Permanent attendance (signatures on list)

Applied Quantitative Methods

⇨ Individual assignments (thesis)

Team Work Sessions

⇨ Presentation

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Introduction / Literature

- Handouts
- Reader
  - Guidelines for Writing Academic Papers in Agricultural Economics
  - Regulation (EC) No 178/2002
  - Quality Assurance Schemes
  - HACCP
- Luning P.A., Marcelis W.J., Jongen W.M.F. (2002): Food quality management, a techno-managerial approach. Wageningen Pers, Wageningen.
- Internet links (during Tuesday lecture)

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- Overview of the week

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Time Table / Overview of the week

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 – 12:20	**Introduction** Doluschitz/ Morath	**Agribusiness** Morath Doluschitz/	**Presentation (Topic, Outline)** Doluschitz/ Morath	**Presentation and Discussion** Morath	**Team work session IV (Questionnaire)** Morath
	Principles of Scientific Research Doluschitz/ Morath	**Quality Management** Morath Doluschitz/	**Sampling** Rückert-John	**Questionnaire** Rückert-John	**Presentation Discussion Questionnaires** Rückert-John/ Morath
13:30 – 16:30	**Research Strategies** Rückert-John	**Concepts and their measurement** Rückert-John	**Sampling** Rückert-John	**Questionnaire** Rückert-John	**Presentation Discussion Questionnaires** Rückert-John/ Morath
	Research Designs Rückert-John	**Team work session I (Topic, Outline)** Doluschitz/ Morath	**Team work session II (Concept)** Morath	**Team work session III (Questionnaire)** Morath	

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Suggested topics and explanation / Topics and investigation fields

General topic addressed

Quality Management and traceability in Agribusiness

Specific topics

- Current problems in enterprises and companies
- State of the art in Croatian Agribusiness Companies
- Requirements of the EU (regulation 178/2002)
- Differences according to market areas, sectors, e.g. meat production, brewery, dairy, seed, machinery…

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- Interactivity
- Teams

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Coordination and organization / Interactivity

Exchange of knowledge

- in your team
- between the teams

Brainstorm your ideas together

Extent your social skills

Learn how to approach new topics

Critical view on your own work and the work of others

Communication and discussion

- in your team
- between the teams

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Coordination and organization / Teams

Four Team Work Sessions in this module

How to build up the groups?

Small teams of 2-3 students

- Combination of different knowledge areas
- Combination of different employment backgrounds
- Each member has to be an active part in the presentation
- The teams will stay together during all team work sessions in this module

…and now it is your turn…

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Literature Research

- Reader
- Internet research (Computer)
- Library: books, journals, data bases
- Ministries and Institutions, national laws, EU regulations
- Relevant Master and Doctoral-Thesis
- Relevant Research Projects

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BREAK

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Principles of Scientific Research

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Outline

- **The Scientific Method**
- Data Quality and Assurance
- Ethical Issues
- Thesis Outline
- Scientific Paper

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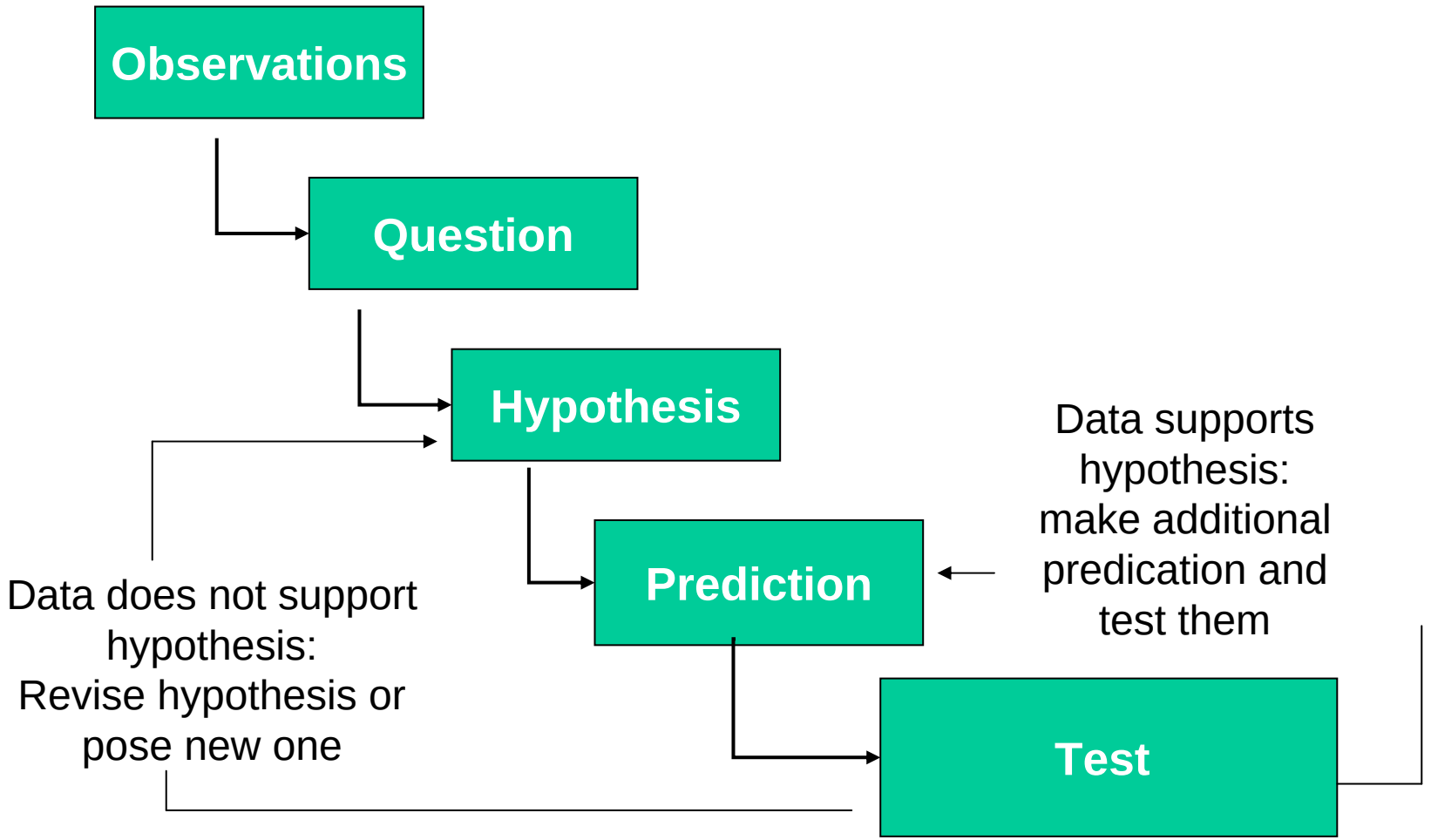
The Scientific Method / General Steps



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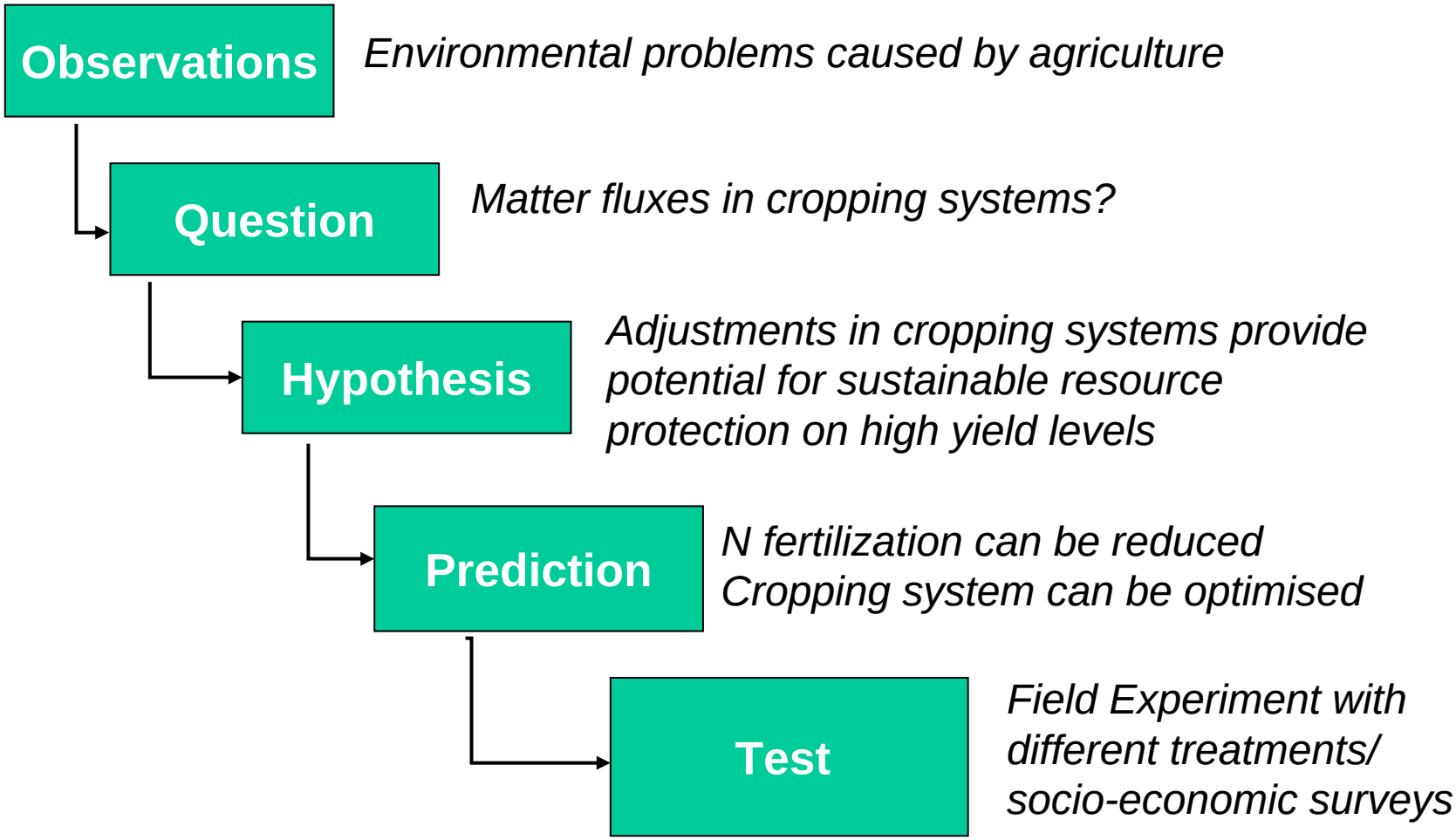
The Scientific Method / example



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Outline

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- **Data Quality and Assurance**
- Ethical Issues
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Data Quality / Objectives

- Accuracy (Trueness)
- Precision
- Completness
- Compatibility
- Reproducibility/Representativeness

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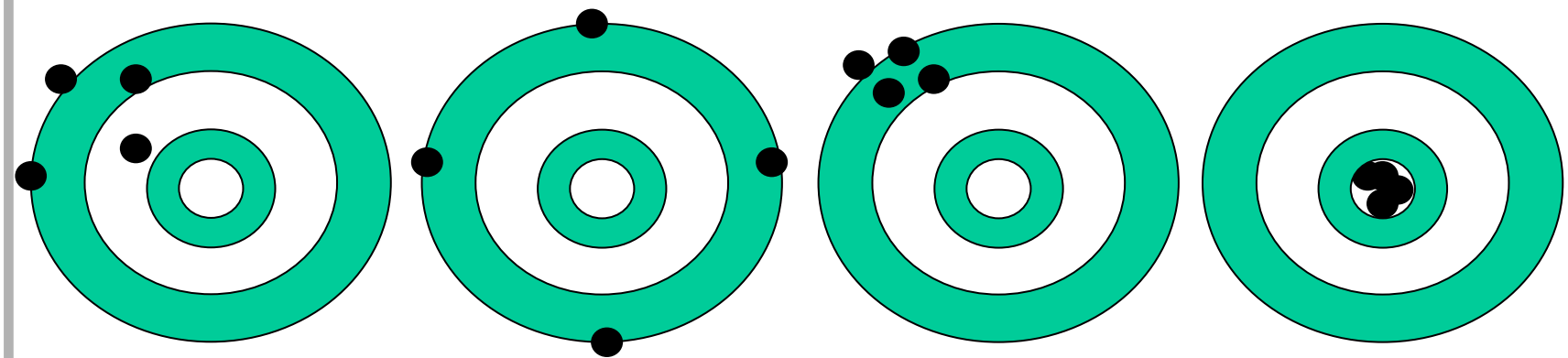
Data Quality / Precision and Accuracy



Low Precison
Low Accuracy

Low Precison
High Accuracy

High Precison
Low Accuracy

High Precison
High Accuracy

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Data Quality Control / experiments

- Calibration of instruments
- Standard operating procedures
- Comparison of methods and instruments
- Documentation
- Data validation checks
- Preventive Maintenance
- Corrective actions

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Data Quality Control / surveys

- Establish the objectives of your surveys
- Define target population and determine appropriate sample (size and distribution)
- Create questionnaire (link questions to hypotheses)
- Pre-test the questionnaire
- Adjustment of questionnaire
- Conduct interviews
- Data analysis
- Pitfalls: biased samples, biased questions

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Outline

- The Scientific Method
- Data Quality and Assurance
- **Ethical Issues**
- Thesis Outline
- Scientific Paper

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Ethical Issues

Two kinds of unforgivable ethical errors in scientific communication

1. Distorting your own data
2. Plagiarizing the work of others

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Ethical Issues / Plagiarism

Not only ethical, but also legal issue

Might result from sloppy documentation!

e.g. literature sources

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Ethical Issues / Distorting of data

Examples:

- Falsing of data
- Trimming of data
- Biased interpretation of data
- Misleading and ambigious statements and presentation

Intentional, but be also especially aware of unintentional errors:

„Don´t make up your mind about your results before your data are collected and analyzed“

Davis 1996

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Ethical Issues / Basic Rules

- Ethical researcher do not steal by plagiarizing or claiming the result of others
- They do not lie by misreporting sources or inventions
- They do not destroy sources or data for those who follow

Booth et al. 1995

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Ethical Issues / Basic Rules

- Responsible researcher do not submit data whose accuracy they have reason to question
- They do not conceal objections that they cannot rebut
- They do not write their reports in a way that deliberaty makes it difficult for readers to understand them, nor do they oversimplify that which is legitimately complex.

Booth et al. 1995

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Thesis / How to write

Titles

- Extremly important
- Limit of 6 to 12 words, each must work hard

Past, present or future

- Introduction – primarily past
- Materials and methods – past
- Results – past
- Discussion and Conclusion - present and sometimes future

(Luellen 2001)

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Thesis / Basic Outline of a Comprehensive Thesis

- **Introduction**
  - General justification of the study, hypothesis or purpose, statement of objectives
- **Literature Review**
  - Sometimes combined with introduction
- **Materials and Methods**
  - Specific procedures/techniques, including statistics
- **Results**
- **Discussion**
  - Significance of your own data; relationship to findings of others
- **Conclusions**
  - Summary of your findings and their significance, suggestions for further reserch or applications of findings
- **Summary**
- **References**
- **Appendices**

(Davis 1997)

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Thesis / Basic Outline and explanations

- **Introduction**

Three parts:

  - **Problem: a problem exists? What is known? What is unknown?**
  - **Objectives: What is your research focussed on? Write down the research questions**
  - **Approach: describe how you work out the topic**

- **Materials and Methods**
  - **Describe what you did in such a way that a competent scientist can recognise that you carried out your research properly**
  - **Tell what materials you used**
  - **Tell and explain the procedures you used**
- **Results**
  - **Give an account of your results and interpret them**
  - **This is what we learn**
- **Discussion and Conclusion**
  - **Discuss the meaning of the results in a critical way**
  - **Use results of others as well**
- **References**

(Luellen 2001)

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Thesis / Incorporating a Series of Journal Articles

- Introduction
- Literature Review
- Journal article 1
  - Abstract/Introduction/MM/Discussion/References
- Journal article 2
- Journal article 3
- Conclusion
- Summary

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Thesis / How to present

Exemplary presentations of Team Work Results

- In front of the class
- Interactive between groups

Structure:

- ✓ **Introduction, incl. problems, objectivs, research questions**
- ✓ **Main Part, incl. results**
- ✓ **Discussion and conclusion**

Tool: ppt-Presentation

Each student has to present a part

ppt-Folien are used to support the lecture or speech

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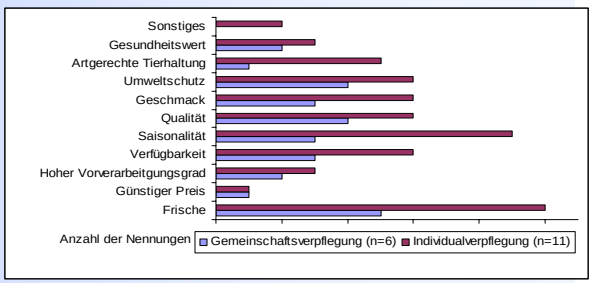
Thesis / How to present

- Visualisation of information
- Clip arts, pictures for loosening and aided recall
- Flow Charts, diagrams, graphics to show results



- Standardised slides (slide master)
- Each slide needs a title
- Outline

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Thesis / How to present - Format

- No thin face, expanded type (e.g. Arial, Verdana)
- Type size at least 16
- In note form
- More than single spaced, e.g 1,2
- No syllabication, do not separate data and unit
- Animation: text and reading direction

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Outline

- The Scientific Method
- Data Quality and Assurance
- Ethical Issues
- Thesis Outline
- **Scientific Paper**

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Scientific Paper

- „Scientific research is not complete until the results have been published“ (Day 1998)
- Presents original research results
- Peer reviewed
- Its information allows repeating of experiments and testing of conclusion
- Journal must be accessible to scientific community
- IMRAD format
  - Introduction
  - Methods and Materials
  - Results
  - Disussion

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Scientific Paper / Abstract

- Miniversion of the Paper
- Brief summary of each sections of the main paper: Introduction, Materials and Methods, Result, Discussion, Conclusion
- Should be self-contained
- Up top 250 words

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Scientific Paper / Introduction

- Nature and scope of the problem investigated
- Brief review of relevant literature
- State method applied
- State hypotheses to be tested

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Scientific Paper / Material & Methods

- Describe complete experimental design and methods
- Enough information to repeat the experiment
- Example outline:
  - ➢ Study site
  - ➢ Field experiment
  - ➢ Sampling
  - ➢ Lab techniques
  - ➢ Statistics

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Scientific Paper / Results

- Brief description of experiment
- Present your data
  - Text
  - Tables
  - Figures
- „Crystal Clarity“
- Low redundancy

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Scientific Paper / Discussion

- Principles /generalization of results
- Point out lack of (expected) correlation, unsettled point
- Agreement or disagreement with published results
- Implications and significance of your results
- Conclusions

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Scientific Paper / Procedure

- Choose appropriate journal (scope of journal, prestige)
- Check out its „Instruction to Authors“ and adjust manuscript
- Send in 3 (or other required number of) copies of manuscript, figures and tables on seperate sheets, + cover letter to editorial office
- Review process:
  - (subject) editor will pass manuscript to 2 reviewers
  - Decisions of reviewers: Minor revisions – major revisions – reject
  - Revision of manuscript by authors
  - Resubmission of MS + letter with point-by-point disposition of the reviewers‘ comments
- Correction of Proofs

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References

- Blooth, WC et al. (1995): The Craft of Research, The University of Chicago Press, London , Chicago, pp 294.
- Davis, M (1996): Scientific Papers and Presentations, Academic Press, San Diego, London, pp 296.
- Day, RA (1998): How to Write & Publish a Scientific Paper, Oryx Press, pp 296.
- Gauch, HG (2003): Scientific Method in Practice, University Press, Cambridge, pp 435.
- Luellen, W (2001): Fine-Tuning Your Writing, Wise Owl Publishing Company, Madison, pp 346.
- Yang, JT (1995): An outline of Scientific Writing - For Researchers with English as a Foreign Language,World Scientific Publishing, pp 160.ell

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