

Session 1: Scientific Research & Literature Investigation

**Technische Universität München
Lehrstuhl für Wirtschaftsinformatik**

Learning Objectives

Learning Objectives

Getting familiar with the basics of scientific research

Ability to do a systematic literature investigation based on a research question

Appropriately cite relevant literature in your own work

Central Issue

How do I map the terrain of my thesis?

How do I create a reference list for my thesis that is correct in form and content?

Outline

1. Basics

- – Scientific research
- Mapping the terrain

2. Literature investigation

- Types of sources
- Finding and accessing sources
- Reference management
- Conclusion

3. Creating the reference list

- Content
- Form

Introduction to scientific research

- Understanding and acquiring the “**rules**” of scientific communities:
 - What is the methodology of scientific enquiry?
 - What are the various techniques?
- Acquiring the scientific **tool kit**
 - Tips and tricks of the trade
- The ability of **questioning and reflecting**
 - There is no absolute “right” or “wrong”, or complete knowledge
 - One needs to be able to critically assess different viewpoints and findings

(Rückriem, Stary, & Franck, 1997)

Everyday versus Scientific Knowledge

	<i>Everyday Knowledge</i>	<i>Scientific Knowledge</i>
<i>Knowledge Acquisition</i>	Know-How (Experience of life, learning by doing, etc.)	Knowledge generated under standardized conditions, result of methodical, controlled approach
<i>Status of Knowledge</i>	Combination of know-how and person; Knowledge is useful for individual; subjective	Separation of knowledge and person; an attempt to overcome the subjective bias of the researcher
<i>Imparting the Knowledge</i>	Everyday speech	Academic language

(Dahinden & Hättenschwiler, 2001)

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Research Questions: The starting point of scientific research

- Research means finding **answers to questions!**
 - Map the topic of interest to an unambiguous question.
 - Questions must not be directly answerable with yes/no.
 - Questions should be weighted equally.
- Research questions serve as basis for investigation
 - **Mapping the terrain**
- Objective for each individual
 - What have other people already done or found out?
 - What do I write about?
 - What do I not write about?

Research Questions (1/3)

- **Functions**

- Framework of scientific research
- Induce to clarify terminology
- Justify the relevance
- Feasibility check
- Control the research process (common thread)
- „Research questions should be: Evocative, relevant, clear and researchable“
(<http://iis.berkeley.edu/content/nuts-bolts>)

Research Questions (2/3)

A research question...

- is **attractive** to the author (and reader)
- is **relevant** to the topic
- originates from
 - something that is wrong („It is said ..., but in fact ...“)
 - a relationship between x and y
 - a surprising observation/consideration
- opens the possibility
 - to discuss and make a point
 - to imply something
- has a statement – claim form
- has a clear **main question** (and possibly subordinate questions)
- has a **precise** wording
- is explicitly stated in the introduction
- is **short**, preferably less than 10 lines

Research Questions (3/3)

„How do you assess success, efficiency, effectiveness, and profitability of XY?“

- 3 questions in 1 – possibly a lot of effort!
- Can you really measure everything?

„How can the performance of XY be optimized?“

- What exactly is the optimum?

„What are the success factors of ballpoint pens?“

- Research addressing success factors is very elaborate!

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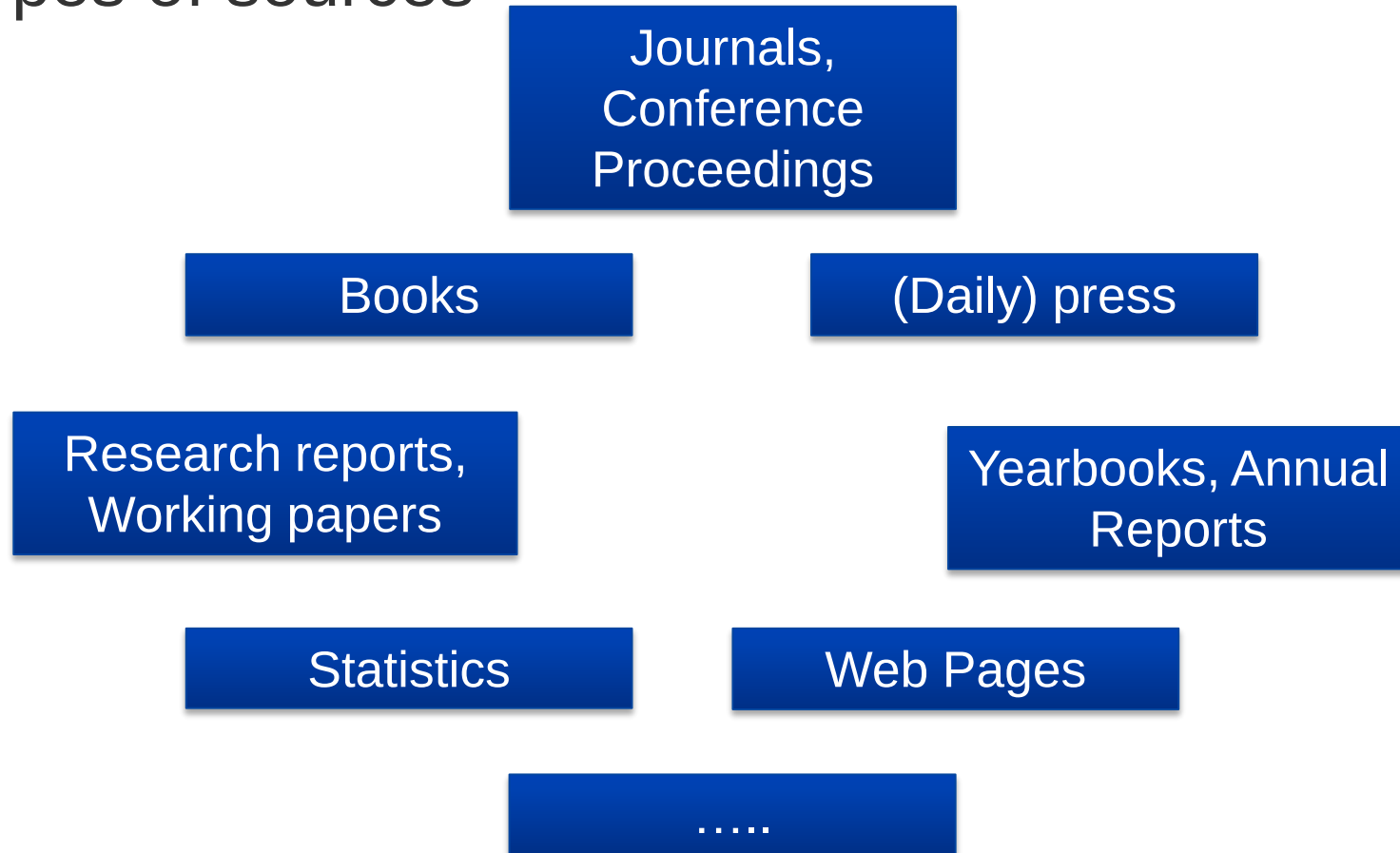
2. Literature investigation

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Types of sources



Books: Textbooks

- **Objective**
 - Overview of a specific subject area
- **Characteristics**
 - Description of relevant concepts
 - Restricted on widely undisputable knowledge
- **Pros & Cons**
 - + Quick familiarization with a subject area
 - Shallow information → hardly suited for detailed knowledge

Example: Laudon, K. C., & Traver, C. G. (2001). *E-Commerce: Business. Technology. Society* (1st ed.). Boston, MA: Addison-Wesley.

Krcmar, H. (2010). *Informationsmanagement* (5th ed.). Berlin: Springer.

Books: Monographs

- **Objective**
 - Documentation of findings of an investigation
- **Characteristics**
 - Geared towards a specific field of investigation
 - Document written independently by one author or a team of authors
- **Pros & Cons**
 - + can provide an in-depth view, an understanding on a particular topic or field
 - not always up-to-date
 - +/-unmanageable wide range

Example: Finkenzeller, K. (2003). *RFID Handbook: Fundamentals and Applications in Contactless Smartcards and Identification* (2nd ed.). Chichester: John Wiley.

Books: Edited books

- **Objective**
 - Documentation of findings of an investigation
- **Characteristics**
 - One form of scientific publication
 - Editors are responsible for the overall concept of the book
 - Single articles written by different authors
- **Pros & Cons**
 - often articles that could not be published in renowned journals; not the highest qualitative standards
 - + may have higher practical relevance

Example: Zmud, R. (Ed.). (2000). *Framing the domains of IT management: projecting the future through the past*. Cincinnati, OH: Pinnaflex Educational Resource Inc.

Books: Articles in concise dictionaries

- **Objective**
 - Composing a review article
- **Characteristics**
 - Concise dictionaries are generally edited by renowned specialists
 - Formulation of articles by acknowledged representatives of the field
- **Assessment**
 - + Especially suited for finding a structure for the own thesis
 - Only a short overview

Example: Hansen, H. R., & Neumann, G. (Eds.). (2002). *Arbeitsbuch Wirtschaftsinformatik - IT-Lexikon, Aufgaben und Lösungen* (6th ed.). Stuttgart: Lucius & Lucius.

Internet

- **Alternatives for search**
 - Search engines
 - Web catalogs
 - Meta search engines
- **Pros & Cons**
 - + Ease of use
 - + Many results
 - + Various ways of refining and specifying the query
 - + Relatively comprehensive database
 - Too many/unusable hits for many queries
 - Not necessarily scientific source (anyone can create content online)
 - No quality control
 - Falsification by censorship / hoaxes / search engine marketing
 - Authors often ambiguous
 - Possibly short-lived

Journal articles

- **Objective**
 - Documentation of research findings and results
- **Characteristics**
 - Scientifically based, rigorous and up to date state of knowledge in a field of research
 - High quality (peer-reviewed)
- **Pros & Cons**
 - + most important source of information forming the basis of scientific work
 - +/-comprehensive spectrum
 - not all journals are of similar quality

Look for journals that are acknowledged in your field (journal rankings)

Sample of important Journals

- **International**
 - Management Information Systems Quarterly (MISQ)
 - Information Systems Research (ISR)
 - Information & Management
 - European Journal of Information Systems (EJIS)
 - Journal of Management Information Systems (JMIS)
 - Communications of the Association for Information Systems (CAIS)
 - Journal of the Association for Information Systems (JAIS)
 - Communications of the ACM (CACM)
 - Harvard Business Review (HBR)
 - Sloan Management Review (SMR)

- **German**
 - Wirtschaftsinformatik
 - Information Management
 - HMD – Praxis der Wirtschaftsinformatik

Research reports, Working papers

- **Objective**
 - Documentation of research results
- **Characteristics**
 - Reports created within the responsibility of the researcher
- **Pros & Cons**
 - + high topicality
 - no external audits
 - no quality assurance

Conference proceedings

- Publication of research findings and results
- Often peer-reviewed

Pros & Cons

- + Especially relevant for new topics
- Quality can vary widely
- Short, more like overview

Examples of good conferences: International Conference of Information Systems (ICIS), Academy of Management (AOM), ACM Conference on Human Factors in Computing Systems (CHI), European Conference on Information Systems (ECIS)

Other Sources

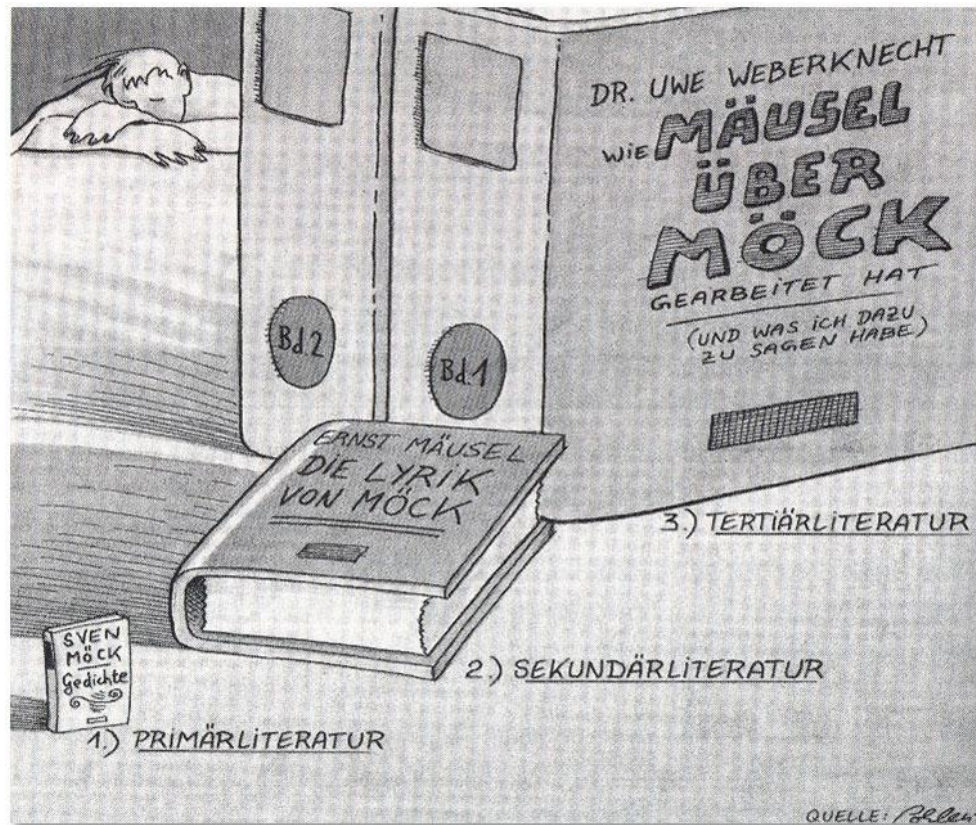
- Statistics
- Yearbooks
- Annual Reports
- (Daily) press
- Information from news services
- Information from different agencies, institutions or associations
- ...

Categorize: Differentiate between primary and secondary literature (1/2)

- **Primary literature**
 - Originates from the author's own research effort
- **Secondary literature**
 - Results from gathering, outlining, condensing, etc. primary literature

Use an adequate amount of primary literature for your thesis!

Categorize: Differentiate between primary and secondary literature (2/2)



(Frank & Stary, 2003, p. 256)

Characteristics of a good bibliography

- Number of different sources
- Variety of different sources
- Use of respective literature
- Use of foreign-language literature
- Use of up-to-date literature
- Quality & credibility of sources

Outline

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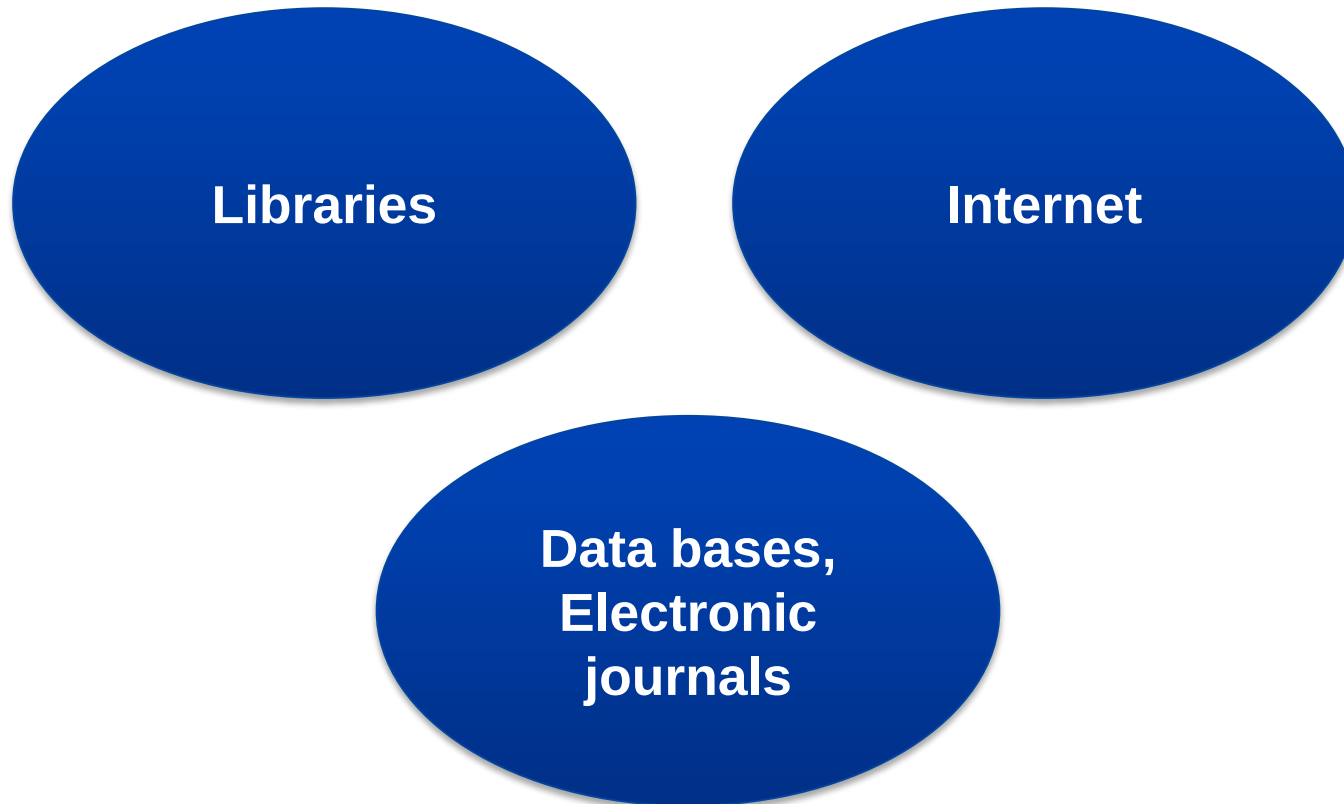
2. Literature investigation

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- Form

Sources



Libraries

- Online investigation or in the library with the library catalogue (Opac)
- Loan or access sitting inside the library
- Interlibrary loan from other libraries
- Order a copy from delivery service (<http://www.subito-doc.de>)

TUM Libraries

- **TUM Main Library**

- Textbooks from the different departments, spread over the different departmental libraries

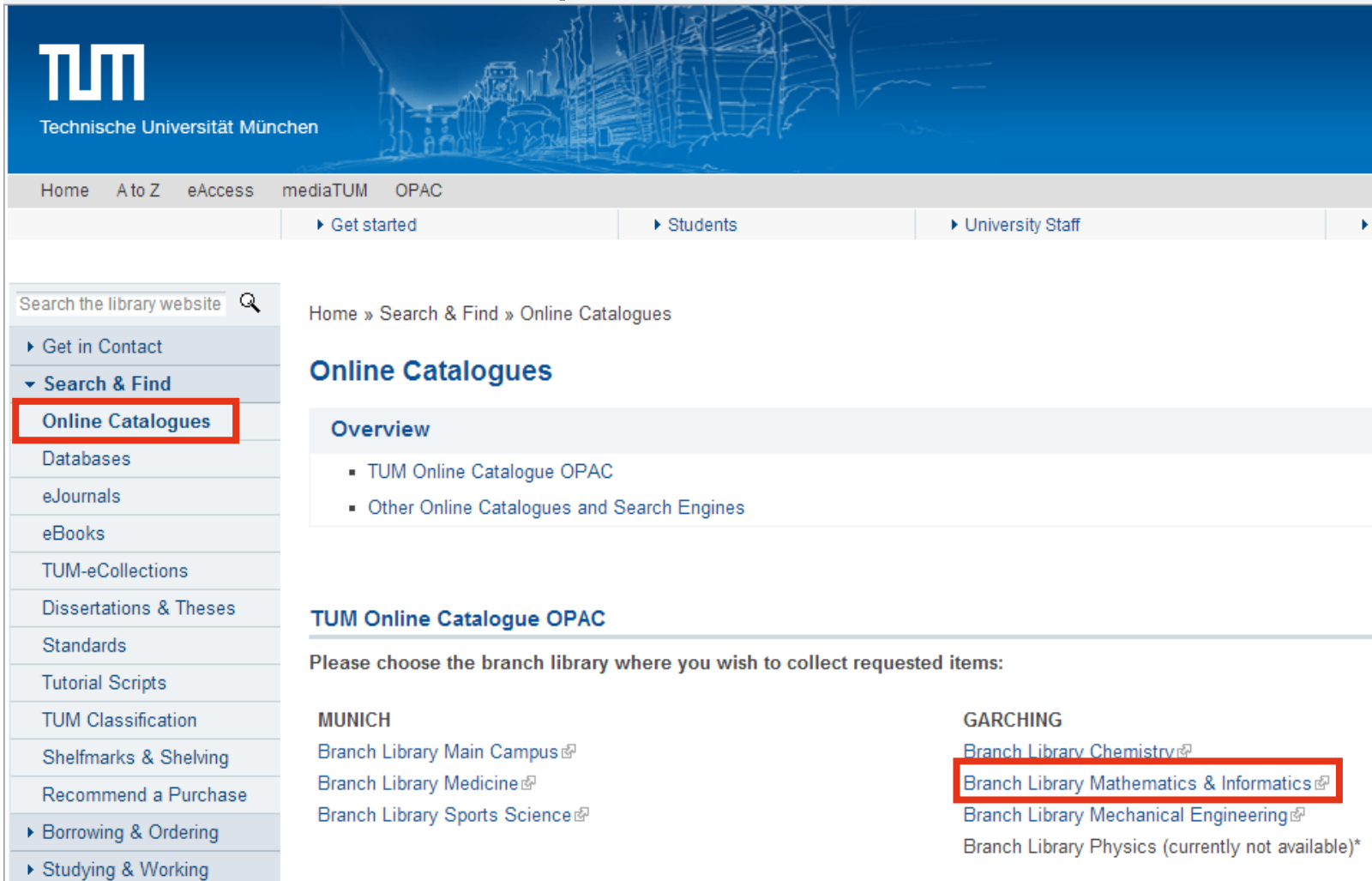
(Stammgelände, Architektur, Raumplanung, BWL, Sozialwissenschaften, Sport, Klinikum rechts der Isar, Vorklinikum, Maschinenwesen, Physik, Chemie, Weihenstephan, Forst)

- Stock on loan, non circulating items
- www.ub.tum.de

- **TUM Departmental Library** (Mathematics/Informatics, Engineering, etc.)

- Textbooks covering the topics of the faculties
- Monographs/Journals (hard copies)
- Reports
- Dissertations of the faculties

TUM Libraries – <http://www.ub.tum.de>



The screenshot shows the TUM Libraries website. The header features the TUM logo and the text 'Technische Universität München'. Below the header is a navigation bar with links: Home, A to Z, eAccess, mediaTUM, OPAC, and a dropdown menu containing 'Get started', 'Students', and 'University Staff'. On the left side, there is a search bar and a vertical menu with the following items: 'Get in Contact', 'Search & Find' (expanded), 'Online Catalogues' (highlighted with a red box), 'Databases', 'eJournals', 'eBooks', 'TUM-eCollections', 'Dissertations & Theses', 'Standards', 'Tutorial Scripts', 'TUM Classification', 'Shelfmarks & Shelving', 'Recommend a Purchase', 'Borrowing & Ordering', and 'Studying & Working'. The main content area shows the breadcrumb 'Home » Search & Find » Online Catalogues' and the title 'Online Catalogues'. Below this is an 'Overview' section with two items: 'TUM Online Catalogue OPAC' and 'Other Online Catalogues and Search Engines'. Further down, the 'TUM Online Catalogue OPAC' section is displayed, followed by the instruction 'Please choose the branch library where you wish to collect requested items:'. There are two columns of links: 'MUNICH' (Branch Library Main Campus, Branch Library Medicine, Branch Library Sports Science) and 'GARCHING' (Branch Library Chemistry, Branch Library Mathematics & Informatics (highlighted with a red box), Branch Library Mechanical Engineering, Branch Library Physics (currently not available)*).

Technische Universität München

Home A to Z eAccess mediaTUM OPAC

► Get started ► Students ► University Staff ►

Search the library website 🔍

► Get in Contact

▼ Search & Find

Online Catalogues

Databases

eJournals

eBooks

TUM-eCollections

Dissertations & Theses

Standards

Tutorial Scripts

TUM Classification

Shelfmarks & Shelving

Recommend a Purchase

► Borrowing & Ordering

► Studying & Working

Home » Search & Find » Online Catalogues

Online Catalogues

Overview

- TUM Online Catalogue OPAC
- Other Online Catalogues and Search Engines

TUM Online Catalogue OPAC

Please choose the branch library where you wish to collect requested items:

MUNICH

- Branch Library Main Campus
- Branch Library Medicine
- Branch Library Sports Science

GARCHING

- Branch Library Chemistry
- Branch Library Mathematics & Informatics**
- Branch Library Mechanical Engineering
- Branch Library Physics (currently not available)*

TUM Online Catalogue OPAC



Universitätsbibliothek der TUM
Online-Katalog

[Search](#) [My List](#) [Account](#) [Additional Services](#)

New Search

Language [german](#) | [english](#)

Search request

Keyword Anywhere		
and	Keyword in Title	
and	Author / Editor (only one)	Index
and	Subject Heading	Index

Search Online Catalogue of the TU
München[Clear](#)[Search](#)

Limit Search

Search Preferences

Database Selection

☒ Exact words ☐ Find similar terms

Pick up books at

TB Mathematik/Informatik

Search holdings of

All branch libraries

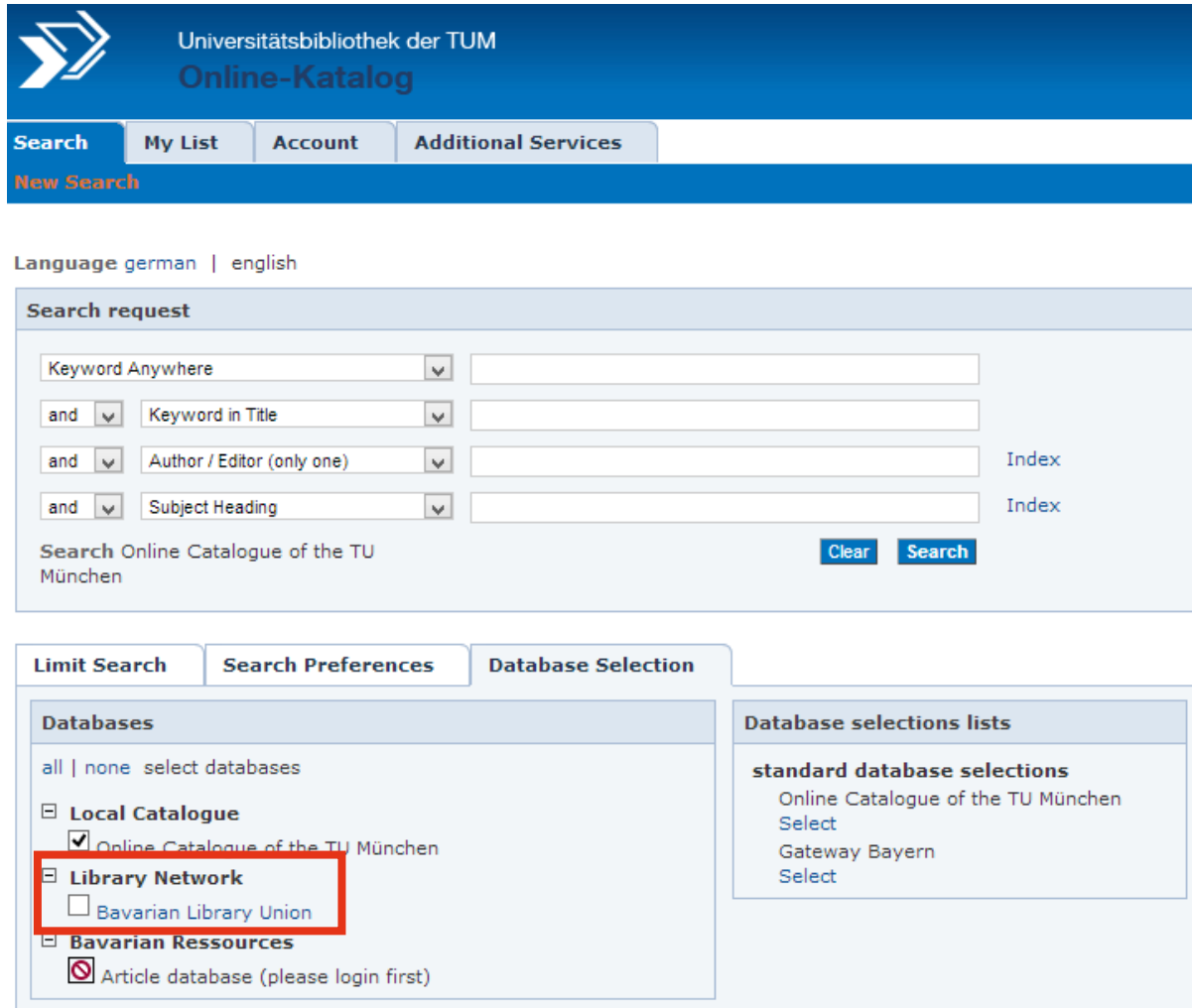
Media Type

all

Publication Period from

Publication Period to

Interlibrary loan within the Bavarian library network



The screenshot shows the search interface of the Universitätsbibliothek der TUM Online-Katalog. The header includes the TUM logo and navigation tabs: Search, My List, Account, and Additional Services. Below the header, there is a language selector (German/English) and a search request form. The search request form has four input fields for Keyword Anywhere, Keyword in Title, Author / Editor (only one), and Subject Heading, each with a dropdown menu and a search button. Below the search request form, there are tabs for Limit Search, Search Preferences, and Database Selection. The Database Selection tab is active, showing a list of databases. The 'Library Network' section is highlighted with a red box, containing the 'Bavarian Library Union' option. The 'Bavarian Resources' section is also visible, containing the 'Article database (please login first)' option.

Universitätsbibliothek der TUM
Online-Katalog

Search My List Account Additional Services

New Search

Language [german](#) | [english](#)

Search request

Keyword Anywhere

and Keyword in Title

and Author / Editor (only one) Index

and Subject Heading Index

Search Online Catalogue of the TU München [Clear](#) [Search](#)

Limit Search Search Preferences Database Selection

Databases

[all](#) | [none](#) select databases

☐ Local Catalogue

☒ Online Catalogue of the TU München

☐ **Library Network**

☐ Bavarian Library Union

☐ Bavarian Resources

☒ Article database (please login first)

Database selections lists

standard database selections

Online Catalogue of the TU München
[Select](#)

Gateway Bayern
[Select](#)

Bavarian State Library

- More than 7 million volumes, old collections with books from the beginning of letterpress, one of the most important collection of manuscripts in the world
- Focus on archaeology, history, music, Eastern and South Eastern Europe as well as the Orient and East Asia, except technology and applied agronomy
- Mathematics/Informatics/Economy: numerous books and reports
- Request library card locally
- www.bsb-muenchen.de

Stadtbibliothek München

- Library network with more than 30 libraries
- Central library located in Gasteig – the cultural center of Munich since 1984
- Open access library with more than 200,000 volumes (especially music, children and youth)
- Repository with around 1 million mediums
- Open to all residents in the metropolitan area of Munich
- Non circulation items in the reading room include printed and electronic reference works from all departments and collected works of important scientific and fiction authors
- For computer science, information systems, management: predominantly introductory literature (suitable for scientific investigations only to a limited extent)
- www.muenchner-stadtbibliothek.de

Electronic Databases

- Fastest access to the most current literature
- <http://www.ub.tum.de/en/databases>
 - On-campus access via proxy
 - Off-campus access via eAccess
- Many fulltext downloads possible
 - Journal Articles
 - Conference Proceedings

http://www.ub.tum.de/en/databases

Search the library website 

- ▶ Get in Contact
- ▼ Search & Find
 - Online Catalogues
 - Databases**
 - eJournals
 - eBooks
 - TUM-eCollections
 - Dissertations & Theses
 - Standards
 - Tutorial Scripts
 - TUM Classification
 - Shelfmarks & Shelving
 - Recommend a Purchase
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- ▶ Studying & Working
- ▶ Writing & Publishing
- ▶ Courses & eLearning
- ▶ About the Library
- A to Z

Follow us on:



Home » Search & Find » Databases

Databases

The University Library of the Technische Universität München (TUM) provides you with access to over than 1900 databases.

Overview

- Access to Databases via DBIS
- Finding and Using Databases
- Terms of use

Access to Databases via DBIS

On-Campus Access >>>

On-campus access via proxy:  You wish to use databases the University Library provide and you have access to a comp browser.

... and that's all there is to it: set up proxy configuration 

Off-Campus Access >>>

Off-campus access via eAccess:  You wish to remote access the databases provided by the University Library? As a TU TUM branch libraries.

... and that's all there is to it: use eAccess

Datenbank-Infosystem (DBIS)

Bibliothek der TU München

[Homepage der TUB](#)
[Online-Katalog](#)
[SFX](#)
[Elektronische Zeitschriften](#)
[EBooks](#)

Suche nach Datenbanken

Schnelle Suche

Erweiterte Suche

Aktuelles

Fachübersicht

Alphabetische Liste

Hinweise zur Benutzung

Ansprechpartner

Bibliotheksauswahl / Einstellungen

Über DBIS

Gefördert durch:



DFG

Impressum

Fachübersicht

Fachgebiete	Anzahl
Allgemein / Fachübergreifend	449
Allgemeine und vergleichende Sprach- und Literaturwissenschaft	12
Anglistik, Amerikanistik	17
Archäologie	57
Architektur, Bauingenieur- und Vermessungswesen	120
Biologie	251
Chemie	114
Elektrotechnik, Mess- und Regelungstechnik	34
Energie, Umweltschutz, Kerntechnik	9
Ethnologie (Volks- und Völkerkunde)	15
Geographie	104
Geowissenschaften	71
Germanistik, Niederländische Philologie, Skandinavistik	12
Geschichte	122
<u>Informatik</u>	45
Informations-, Buch- und Bibliothekswesen, Handschriftenkunde	17
Klassische Philologie	146
Kunstgeschichte	130
Land- und Forstwirtschaft, Gartenbau, Fischereiwirtschaft, Hauswirtschaft, Ernährung	

Select subject (e.g.,
Wirtschafts-
wissenschaften,
Informatik, etc.)

e.g. Business Source
Premier (via Ebsco
Host), IEEE, or
SpringerLink

Electronic journals: EZB

The EZB Service OPAC eAccess Databases

Journals

by subject

by title

advanced search

new in the EZB

Journal title

go

Choose Institution

Preferences

Contact

Contact address

Suggest a journal

87925 journals

new: EZB-App

Fulltext journals by title

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

— 027.7 : Zeitschrift für Bibliothekskultur = Journal for Library Culture...

- ○ ○ [027.7 : Zeitschrift für Bibliothekskultur = Journal for Library Culture](#)
- ○ ○ [07: das Stadtmagazin für Jena und Region](#)
- ● ○ [1-800 FLOWERS.COM, Inc. SWOT Analysis \(via EBSCO Host\)](#)
- ○ ○ [10/90 Report on Health Research, The](#)
- ● ○ [10 Sport, Le \(via Library PressDisplay\)](#)
- ○ ○ [100% Culture](#)
- ○ ○ [1000 und 1 Buch: Das österreichische Magazin für Kinder und Jugendliteratur](#)
- ○ ○ [1066 : Tidskrift for Historie](#)
- ○ ● [14th Century English Mystics Newsletter \(via JSTOR\)](#)
- ○ ○ [1540 compass](#)
- ○ ○ [1585 - Business Journal Deutsche Börse Group](#)
- ○ ○ [16 de Abril: Revista Cubana de los Estudiantes de las Ciencias Médicas](#)
- ○ ○ [16 Renford Road](#)
- ○ ○ [1611: Revista de Historia de la Traducción](#)
- ○ ○ [1750 Krónur Gefins](#)
- ○ ○ [1833: Ou L' Année de la Mère](#)

Searching: **Business Source Premier** | [Choose Databases](#)☐ Suggest Subject Terms

Krcmar

AU Author

Search

Clear



AND

Select a Field (optional)

AND

Select a Field (optional)

[Add Row](#)[Basic Search](#) | [Advanced Search](#) | [Search History](#)

Refine Search



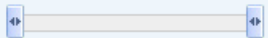
▼ 63 Results for...

Boolean/Phrase:
AU Krcmar

▼ Refine your results

☐ Full Text☐ References Available☐ Scholarly (Peer Reviewed)
Journals

1989 Publication Date 2013



Update

[Show More »](#)

▼ Source Types

☒ All Results☐ Academic Journals (41)☐ Trade Publications (22)☐ Product Reviews (1)

Page: 1 2 3 Next ▶

1.

Academic
Journal[A comparative analysis of information visibility in two supply chain management information systems.](#)By: Goswami, Suparna; Engel, Tobias; **Krcmar**, Helmut. Journal of Enterprise Information Management. 2013, Vol. 26 Issue 3, p276-294. Subjects: SUPPLY chain management; INFORMATION storage & retrieval systems; INFORMATION sharing; SUPPLY chains; BUSINESS logist Database: Business Source Premier [Add to folder](#)

E-Journal im Bestand der TUM?

[Check SFX for more information](#)

2.

Academic
Journal[Leveraging Crowdsourcing: Activation-Supporting Components for IT-Based Ideas Competition.](#)By: Leimeister, Jan Marco; Huber, Michael; Bretschneider, Ulrich; **Krcmar**, Helmut. Journal of Management Information Systems. Summer2 Subjects: INNOVATION management; INFORMATION technology; RESEARCH; KEY performance indicators (Management); ENTERPRISE re technology); MOTIVATION (Psychology); THEORY & practice; IDEA (Philosophy) Database: Business Source Premier[Show all 17 images](#) [Add to folder](#) | Cited References: (42) | Times Cited in this Database: (11)

PDF Full Text (11.4MB)

[Check SFX for more information](#)

Gateway Bayern

- Union catalog of the Bavarian library network
- More than 23 million title and 48 million inventory evidence from more than 150 libraries
- More than 55 million article evidence from more than 23,000 journals

(<http://gateway-bayern.de/>, retrieved August 12, 2013)

Networks

- SSRN (Social Science Research Network)

<http://www.ssrn.com/>



The screenshot shows the SSRN website interface. At the top, the SSRN logo is on the left, followed by the text "SOCIAL SCIENCE RESEARCH NETWORK" and the tagline "Tomorrow's Research Today". A "QuickSearch" input field is on the right. Below the header is a navigation bar with links: Home, Search, Browse, Submit, Subscribe, Shopping Cart, and My Briefcase. The main content area is divided into several sections:

- SSRN USER HQ**: A section for user registration and login, including fields for "USER ID" and "PASSWORD", a "Go" button, and a link for "Forgot ID or Password? | Help".
- SSRN eLibrary**: A section for research papers, featuring logos for "CHICAGO BOOTH", "KOREA UNIVERSITY", and "ecgi" (European Corporate Governance Institute). It includes buttons for "Top Papers", "Top Authors", "Top Institutions", "Search", and "Browse".
- SSRN's Objective and Commitments to Users**: A section with a message from Michael C. Jensen, SSRN Chairman, and a link to the "20th Anniversary Message from: Michael C. Jensen, SSRN Chairman".
- Recent Announcements**: A section with several announcements, including "SSRN has again been named the Number 1 Open Access Repository in the World (for July, 2012) by the Ranking Web of World Repositories", "Announcing European Business Research Conference Proceedings 2012 on SSRN", "Announcing 2012 TPRC Conference on SSRN", and "Max Planck Institute for European Legal History Joins Law Research Centers Papers".
- Leading Social Science Research Delivered Daily**: A section with a description of SSRN's mission: "Social Science Research Network (SSRN) is devoted to the rapid worldwide dissemination of social".

On the left side of the main content area, there is a vertical list of research networks:

- Accounting Research Network (ARN)
- Anthropology & Archaeology Research Network (AARN)
- Cognitive Science Network (CSN)
- Corporate Governance Network (CGN)
- Economics Research Network (ERN)
- Entrepreneurship Research & Policy Network (ERP)
- Financial Economics Network (FEN)
- Health Economics Network (HEN)
- Information Systems & eBusiness Network (ISN)

Internet – Search engines

- Google Scholar helps find scientific texts
- www.scholar.google.com
- However, the fulltext may not be available or only subject to a charge
- In this case look at the databases of the library
- Further sources:
 - www.sciencedirect.com
 - www.springerlink.com
 - www.books.google.com
 - www.citeseer.com

Outline

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Reference management – Why?

- Structured collection of sources
- Easily retrieve resources
- Tag, annotate, comment resources
- Insert and manage citations word processor



Reference management – Which tool?

- Dependent on standards, cost, personal preferences, underlying infrastructure, external guidelines, etc.
- **Recommendations**
 - **Citavi** campus license for TUM students, license at <https://www.ub.tum.de/en/reference-management> with mytum account
 - **Mendeley** (Social features, metadata recognition, free of charge)
 - **Zotero** (Firefox extension, open source, word plugin, automatic metadata recognition, synchronization)
 - **Endnote** (subject to a charge, quasi standard of the scientific community, widely used)

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Conclusion

Good Investigation...

- Shows state of the art on the topic and identifies research **gaps**
- Creates **strong** basis for the own thesis

Good Investigation is achieved by...

- Mapping the terrain
- Methodical search and review of literature (e.g., selection of sources, selection of keywords, backward/forward tracing)

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➤ 3. Creating the reference list

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Content

- **Elements**

- Author (Last Name, First Name)
- Title (Journal article title, Book title, etc.)
- Year of Publication
- Source (Name of journal, conference, publishing house, etc.)
- Volume, Issue
- Editors (for books, chapters from edited books, conference proceedings)
- Pages

Form

- **Different referencing styles**
 - APA (American Psychological Association)
 - ACS (American Chemical Society)
 - American Mathematical Society
 - IEEE Style
 - AIS (Association of Information Systems) style
- One should use any one style **uniformly** through out the thesis
- Most journals and conferences provide the citation style or template for references

Example (APA)

Book

McNurlin, B. C., & Sprague, R. H. (1998). *Information Systems Management in Practice* (6th ed.). Upper Saddle River, NJ: Prentice Hall PTR.

Journal

Sambamurthy, V., & Chin, W. W. (1994). The Effects of Group Attitudes Toward Alternative GDSS Designs on the Decision-making Performance of Computer-Supported Groups*. *Decision Sciences*, 25(2), 215-241.

Edited Book

Coleman, D., & Khanna, R. (Eds.) (1995). *Groupware Technology and Applications*. Upper Saddle River, NJ: Prentice Hall PTR.

Example (APA)

Article in Edited Book

Nunamaker Jr, J. F., Briggs, R. O., & Mittleman, D. D. (1995). Electronic meeting systems: Ten years of lessons learned. In D. Coleman, & R. Khanna (Eds.), *Groupware Technology and Applications* (pp. 146-193). Upper Saddle River, NJ: Prentice Hall PTR.

Electronic Publications (Document only published in the WWW → uploaded journal articles etc. are not considered electronic publications)

Burka, L. P. (1995). *A Hypertext History of Multiuser Dimensions*. Retrieved December 5, 1995, from <http://www.ccs.neu.edu/home/home/lpb/mud-history.html>

Newspaper or Magazine Article

Brown, J. (1997) "Who, When, Why?" *The New York Times*, April 15, p. B3.

Also check **Richtlinien für wissenschaftliches Arbeiten** (www.winfobase.de)

→ Chapter 4.1: Citation style

Literature

Core literature:

Stickel-Wolf, C., & Wolf, J. (2001). *Wissenschaftliches Arbeiten und Lerntechniken* (1st ed.). Wiesbaden: Gabler Verlag. (pp. 109-133)

Deepening literature:

Franck, N., & Stary, J. (2003). *Die Technik wissenschaftlichen Arbeitens: eine praktische Anleitung* (11th ed.). Paderborn: Schöningh.

References:

Dahinden, U., & Hättenschwiler, W. (2001). Forschungsmethoden in der Publizistikwissenschaft. In O. Jarren, & H. Bonfadelli (Eds.), *Einführung in die Publizistikwissenschaft* (pp. 489-527). Bern: Haupt.

Session 2: Outline

Technische Universität München
Lehrstuhl für Wirtschaftsinformatik

Learning Objectives

Learning Objectives

Ability to create an outline after systematizing the information obtained by the literature search based on a logical structure.

Ability to create this outline according to formal requirements.

Central Issue

How do I create an outline for my thesis with correct content and form?

Outline

- **1. Basics – What is an outline?**
- 2. Design of the outline
- 3. Exemplary outlines
- 4. How to create an outline

What is an outline?

„Im Zusammenhang mit wissenschaftlichen Arbeiten ist eine Gliederung ein auf sprachlichen und mathematischen **Symbolen beruhendes Aussagensystem**, das aufzeigt, wie ein Gesamtthema in **Teilthemen** unterteilt wird, in welches Verhältnis die **übergeordneten** bzw. **gleichgeordneten** (Teil-) Themen zueinander gestellt werden und in welcher **Reihenfolge** und relativen Bedeutung diese Themen behandelt werden.“

(Stickel-Wolf & Wolf, 2001, pp. 150ff.)

Outline – Why? (1/2)

»Wenige schreiben, wie ein Architekt baut, der zuvor seinen Plan entworfen und bis ins einzelne durchdacht hat; vielmehr die meisten nur so, wie man Domino spielt. Kaum dass sie ungefähr wissen, welche Gestalt im ganzen herauskommen wird, und worauf das alles hinaus soll. Viele wissen selbst dies nicht, sondern schreiben, wie die Korallenpolypen bauen. Periode fügt sich an Periode, und es geht, wohin Gott will.«

(Schopenhauer)

Outline – Why? (2/2)

Write like an architect.

- Clarify the train of thought of the thesis
- Clarify the sequence of blocks of arguments
- Establish the organization of the thesis

→ Helps in achieving a good writing style

Outline

1. Basics – What is an outline?
- 2. **Design of the outline**
3. Exemplary outlines
4. How to create an outline

General hints (1/2)

- Reference to the **overall topic** of the thesis
- Include topics that are part of the overall topic in the outline and cover them **in sufficient detail**
- Cover related problem areas **together**
- Avoid text that is not classified in the outline

General hints (2/2)

- Headings of sections should neither overlap the overall topic nor headings of downstream sections
- Same textual **layer of analysis** means same **layer of outline**
- Each subdivision must comprise **at least 2** peer sections
- Outline develops **successively** (lively object)

Arrange sections

- **Deductive** orientation: From the general to the specific
- **Inductive** orientation: From the specific to the general
- **Dialectical** orientation: Outline follows the sequence of the process (thesis, antithesis, synthesis)
- **Chronological** orientation: Outline follows the order of events or aspects

Arrange sections – deductive orientation

Deductive means reasoning from the **general/theory** to the **specific/example**.

Examples:

1) **Rule:** All tomcats are black.

Case: Felix is a tomcat.

Result: Felix is black.

2) **Rule:** All cats are spotted.

Case: Mimi is a cat.

Result: Mimi is spotted.

Arrange sections – inductive orientation

Inductive means inferring from the **example/specific** to the **theory/general**.

Examples:

1) **Case:** Felix is black.

Result: Felix is a tomcat.

Rule: All tomcats are black.

2) **Case:** Mimi is spotted.

Result: Mimi is a cat.

Rule: All cats are spotted.

Arrange sections – dialectical orientation

Outline follows the sequence of the process (**thesis, antithesis, synthesis**).

Example:

Thesis: All tomcats are black.

Argument: Tomcats' black color is genetically determined.

Example: Felix is black.

Antithesis: Not all tomcats are black.

Argument: Genetic mutations are observable.

Example: Max has a white paw.

Synthesis: Most tomcats are black. However, mutations are possible.

Arrange sections – chronological orientation

Outline follows the **chronological sequence** of events or aspects.

Example:

Historic course of the Thirty Years' War

- Bohemian-Palatinate War (1618–1623)
- Danish intervention (1623–1629)
- Swedish intervention (1630–1635)
- French intervention (1635–1648)

Depth of outline

- High depth of outline → loss of clarity
- **As deep as necessary**, not as deep as possible
- Recommendation: maximum depth of outline **between 3 and 5 layers**
- **Alternative possibilities** to outline the text
 - (Indented) paragraphs
 - Subheadings in the text (without numbering)

Proportionality of outline

- Proportion of outline should be factually and optically good
- **However**, don't force absolute symmetry but adapt your outline to the demand for discussion.

Linguistic style

- Headings of sections **as short as possible**
- **Avoid** using filler words
- Use **substantives** for the headings
- **Concise** formulation of headings
- **Communication information** has priority
- Avoid feuilleton style headings

Outline

1. Basics – What is an outline?
2. Design of the outline
- 3. **Exemplary outlines**
4. How to create an outline

Structure of thesis – empirical orientation

1. Introduction

2. Presentation of the topic

Review the state of research, thereby leading to the topic and the concrete problem. Point out the epistemological interest of the thesis.

3. Theory

Embed the topic theoretically. Justify your theory selection: Which theories are used and why? Introduce and maybe modify the theory. Formulate general and case-specific hypotheses based on the theory.

Please note: Good theses often comprise a test including concurring expectations regarding the investigated object based on different theories.

4. Method

Explain and justify your approach. All steps must be revealed, especially details on the population, sample, used data collection instruments and techniques, and the used methods.

5. Data evaluation

Test the hypotheses. Usually the results are shown according to the order of the hypotheses.

6. Answering the questions and interpretation

Discussion of the results.

7. Conclusion

Summarize the results. Prospect.

Structure of thesis – theoretical orientation

1. Introduction

2. Describe the problem

Overview of the theoretical debate based on the literature, thereby leading to the topic and the concrete problem. Point out the epistemological interest of the thesis.

3. Outline the theoretical movements / central theorists

Justify the selection of the considered theorists. Depict the particularly controversial core areas regarding the problem. Introduce and evaluate the arguments and their discussion.

Please note: Good theses often compare the arguments of central authors from concurring theoretical factions and weigh them regarding the own problem.

4. Knowledge acquisition / own contribution

Discuss the insights with regard to the original problem, propose solution. Results from the line of argumentation. Assess the initial thesis, thereby answering the problem.

5. Conclusion

Shortly state the problem and its relevance again. Summarize the own contribution/solution. Prospect.

Structure of thesis – Literature review

cf.

Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: writing a literature review. *MIS Quarterly*, 26(2), 13-23.

Outline

1. Basics – What is an outline?
2. Design of the outline
3. Exemplary outlines
- 4. **How to create an outline**

Ways to create an outline

Structured approach because

- available sources cover **different topics**
- while reading the first few sources, you don't know anything about **following sources**
- you often **forget** content from sources

→ Literature management

Proposed approach (1/3)

1. Work through literature sources to find **extensively discussed topics**
 - Formulate a heading for each of these issues and write them down on a clean sheet. Add the reference where the respective issue is discussed.
 - Process any other sources analogously
2. Screen the **thematized topics**
 - for topics of central importance, inferior importance, and unimportance (can be ignored)

Proposed approach (2/3)

3. Adopt the topics

- Transfer the **headings of the sheets** (in a linguistically modified form) in a document, which is supposed to constitute the outline

4. Check of completeness

- Check if all **important topics** are covered sufficiently. Add topics if necessary.

Proposed approach (3/3)

- Use tools for **information collection, structuring, and knowledge management**
 - **Mind maps** (e.g., Freemind)
 - **Reference management** (e.g., Endnote, Zotero, Citavi, Mendeley)
 - **Scrapbook** (Firefox plugin – bookmarks and tree structures)
 - **Scribble Papers**
 - (Personal) **Wikis**
 - **OneNote**
 - ...

Literature

Core literature:

Stickel-Wolf, C., & Wolf, J. (2001). *Wissenschaftliches Arbeiten und Lerntechniken* (1st ed.). Wiesbaden: Gabler Verlag. (pp. 150-158)

Richtlinien für Studentische Arbeiten und Dissertationen am Lehrstuhl für Wirtschaftsinformatik (2012). Retrieved August 12, 2013, under [http://www.winfobase.de/winfobase/cms_winfobase.nsf/\(ynDK_FileContainerByKey\)/WINR-5WRKRA/\\$FILE/Richtlinien%20Wissenschaftliche%20Arbeiten_v4.9.pdf](http://www.winfobase.de/winfobase/cms_winfobase.nsf/(ynDK_FileContainerByKey)/WINR-5WRKRA/$FILE/Richtlinien%20Wissenschaftliche%20Arbeiten_v4.9.pdf)

Deepening literature:

Theisen, M. R. (2000). *Wissenschaftliches Arbeiten: Technik – Methodik – Form* (10th ed.). München: Vahlen.

Franck, N., & Sary, J. (2003). *Die Technik wissenschaftlichen Arbeitens: eine praktische Anleitung* (11th ed.). Paderborn: Schöningh.

Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: writing a literature review. *MIS Quarterly*, 26(2), 13-23.

Session 3: Scientific Writing

Technische Universität München
Lehrstuhl für Wirtschaftsinformatik

Learning Objectives

Learning Objectives

*Your thesis contains the core components **introduction**, **body**, and **conclusion**.*

*Ability to **argue scientifically**, **quote** correctly, and obey to **formal requirements**.*

Central Issue

What is the accepted styles and norms of writing a scientific thesis?

Outline

- **1. Core components of the thesis**
 - Introduction
 - Main part
 - Conclusion
- 2. Scientific reasoning
- 3. Style of writing
- 4. Quoting
- 5. Formal requirements

Introduction (1/3)

- Precisely state the **issue**
 - Identify and frame the core problems and statements of the issue
- Specify the **objectives**
- Make sure the thesis builds on a clear substantial **problem** (research question)
- **Define** the **central terms** of the thesis
 - Scrutinize the used definitions
 - Choose the definition that is most appropriate for the thesis (justify your choice)

Introduction (2/3)

- Cover the following questions in the introduction
 - **What** is the thesis **about**? (Requirement for research questions)
 - Which **theories**, **concepts**, and **methods** are used to elaborate the topic?
 - What kind of **material** is used?
 - What is the **outline** of the thesis?

Introduction (3/3)

A **good introduction** may ...

1. lead to the topic (starting point)
2. describe the subject
3. review the state of research
4. justify the emphasis of the study
5. deduce, discuss, and differentiate the problem
6. indicate the main argument
7. describe and justify the approach (method)
8. explain the outline
9. define central terms
10. describe the research gap

Main part

- Ensure a **compelling composition**
 - Developed arguments must build on each other in a **concise** and **logical** way
 - Line of thoughts must be **compelling**
- Clear and distinct **relationship** between components of the main part and topic of the thesis

Main part – empirical orientation

- **Treat the research questions** in a logical order by using subheadings and subsections
- Theoretical part: Introduce the theoretical propositions and state the theoretical expectations, that is general and case-specific **hypotheses** (Research Model)
- Empirical part / data: Research type (quantitative, qualitative), research design (e.g., experiment, survey, case study), data collection (e.g., questionnaire, interview, discussion), data evaluation (coding, statistical test), presentation and discussion of results

Main part – theoretical orientation

- Overview of the **theoretical debate** or illustration of the **empirical problem** for the theory
- **Discuss the relevant literature**
 - Statements/arguments by central theorists (justify the selection of single theorists)
 - Interpretation and conclusion
- **Knowledge acquisition / own contribution:**
 - Ontological (e.g., elaborate certain assumptions of a theorist)
 - Incentivize a new way of thinking about familiar topics (e.g., theoretical content of a seemingly nontheoretical topic or new application of a familiar way of thinking)
 - Conceptual (e.g., new common basis of theorists that seem to be contradicting)

Conclusion

- Short **summary** of the central argumentation
- Clear **relationship** to the **main part** and especially to the **outline** of the thesis
 - Relationship to the **objective** and **issue** of the thesis
 - Close the **circle of arguments**
- Based on the results of the summary, **evaluate** whether you achieved the objective of the thesis
- **Reflect** on validity and **interpret** the introduced theoretical expectations based on the empirical data (empirical orientation) or summarize the acquired knowledge and own contribution (theoretical orientation)
- **Prospect** on further development, following research, open questions, etc.

Outline

1. Core components of the thesis
 - Introduction
 - Main part
 - Conclusion
- 2. **Scientific reasoning**
3. Style of writing
4. Quoting
5. Formal requirements

Scientific Reasoning

- Objective
 - Convince a person with a different position to **adopt one's thoughts/position**
- Characteristics
 - The whole reasoning has to be made up of a **sequence of coherent arguments**
 - Each argument has to be convincing on its own
 - Driven by reason

Define terms timely and concisely

- **Origin and basis** of each scientific argumentation
- Recommendation
 - Define terms **early enough**
 - Define as **precisely** as possible
 - **Don't use new meanings** for standard terms of the discipline. However, modification of such terms is possible and sometimes even preferable.

Relevance of statements

- **Question:** Considering the topic of the thesis, is it necessary to unfold a certain line of thoughts?
- Decide on **relevance**
 - based on the own perspective
 - based on the reader's perspective

Stringency of statements

- Question: Are the paragraphs really representing **units of meaning**?
Are all formulations (descriptions, explanations, discussions) conceptually related?
- Ensure that all causal, functional, and logical relations are **coherent**
 - Causal relations
 - point to causal factors resulting in events
 - Functional relations
 - Existence of means-end relations
 - Forward-looking, unlike causal relations
 - Logical relations
 - Relate considered phenomena using logical operators and conclusions

Justification of statements

- Use **trusted knowledge** for your argumentation
- **Substantiate/validate** parts of your statements by
 - relevant data, facts, figures
 - generally accepted facts and relations
 - generally accepted theorems
- Use weakening statements like “I believe” or “It can be assumed” **only in exceptional cases**
- Reasoning should be done in a manner such that it can be reviewed by a third person

Methods of Scientific Reasoning (1/2)

- **Deductive** reasoning
 - From **general** to **specific**
 - Applying a **theory** to the **context of investigation**
 - Applying a finding that is valid for a large group of units of analysis for a unit belonging to that group
- **Inductive** reasoning
 - From the **specific** to the **general**
 - From **the research context** to **a theory**
 - A finding that is valid for a single unit of analysis and can be generalized for multiple units of analysis

Methods of Scientific Reasoning (2/2)

- Arguments from **analogy**
 - Something that holds true or is valid in a **different context**
 - **Example:** Online social networking results in increased perceived social support among **college-students** (let's assume this is a valid statement – scientifically established).
Drawing an analogy, we suggest that online social networking will increase perceived social support among **elderly**.

Interpretation

- Besides the descriptive elaboration, a **personal and transfer contribution (interpretation)** is necessary, thereby giving proof of your own judgment and opinion making.
- The thesis should **not** contain **objective mistakes**, **interpret** quoted authors correctly, and use the **terminology** correctly.

Outline

1. Core components of the thesis
 - Introduction
 - Main part
 - Conclusion
2. Scientific reasoning
- 3. **Style of writing**
4. Quoting
5. Formal requirements

Three basic rules

- „1. Schreiber und Redner: **Fasse dich kurz!**
Schwafle nicht, salbadere nicht, blähe nicht auf und wälze nichts breit, widerstehe der natürlichen Lust am Schwatzen, verzichte auf jeden Versuch, deinen Wortschatz in der Mundhöhle zum Salat anzurichten.“
(Schneider, 2000, p. 40)
- „2. **Faß [!] die Sache – triff das Ziel! Umkreise nicht den heißen Brei – beiß zu!**
Schreibe anschaulich, lebendig, konkret. Sage es mit Saft und Kraft. Hüte dich vor abstrakten Wortgebilden, vor endlosen Silbenscheppzügen, vor aufgeplustertem Tiefsinn, vor `unnützen Zieraden, gekünsteltem Witz, italienischen Spitzfindigkeiten und spanischen Ausschweifungen` (Gottsched 1728). Es ist nicht bekannt, daß [!] je ein des Schreibens kundiger Mensch das Gegenteil ausdrücklich empfohlen hätte.“
(Schneider, 2000, p. 41)
- „3. **Liebe deinen Leser wie dich selbst!** Wer sich kurz faßt [!] und wer direkt auf die Sache zielt, der hat seinen Lesern oder Zuhörern zwei wesentliche Dienste schon erwiesen; nur sollte er darüber hinaus den klaren Willen haben, an sein Sprachprodukt **ihre** [Hervorhebung im Original] Maßstäbe anzulegen und nicht seine.“ (Schneider, 2000, p. 41)

Basic recommendations

- **Negative example:**

„Since the candidates that the executive search consultant mentioned are naturally characters that are working successfully in their current position, they obviously don't want to – in case the contact fails – endanger their position. Thus, in the advanced process, warranting discretion of the client is crucial to successfully continue the conversation.“

- **Better:**

„Executive search consultants approach persons that work successfully and don't want to endanger their position. Thus, discretion is of paramount importance for a successful conversation with interested candidates.“

Only write down what is necessary (1/2)

- Terms like now, in the form of, in absolute terms, etc. are often unnecessary
 - **Example:** “The far bigger part of information relevant to decisions is now available not only in the form of structured data in databases, but also in the form of semi-structured data like simple texts or graphical data, which are available in the form of documents.”
 - **Better:** “The biggest part of information relevant to decisions is available as semi-structured data, such as simple texts or graphical data, which are available as documents.”

Only write down what is necessary (2/2)

- Reference of relative pronouns should be clear
 - **Example:** „Mathematics student is looking for a apartment with a kitchen and a bathroom, in which she can give private lessons.“
→ private lessons in the bathroom?
 - **Better:** „Mathematics student is looking for an apartment with a kitchen and a bathroom. It should be possible to give private lessons in the apartment.“
- Variety of phrases: Don't use the same phrase all the time
 - However, not necessarily suitable for substantives or persons
 - **Example:** „In the beginning was the Word, and the Word was with God, and the Word was God.“
 - No repeated phrases, yet **worse:** “In the beginning was the Word. It was with god and the latter was identical with the former.”

Foreign words must be appropriate

- Foreign words should be only be used if
 - the user really knows the **meaning**
 - their use does **not** make the statement **less precise**
 - their use in the text is **reasonable**

Avoid nesting and run-on sentences

- Put the **main statement** in the **main clause**
- Attach **dependent clauses** to the main clause
- Put **colons/periods**
- Don't separate **compound verbs**
- Use **active voice** rather than passive voice

Main statement in the main clause

- **Example:** „New controlling models, comprehensive management approaches, and efficiency-raising organization processes are issues that public administration increasingly addresses because of cost pressure and the necessary overhaul of the budget.“

Main clause: „New controlling models ... are issues.“

Main statement: „Public administration addresses new controlling models.“

- **Better:** „Public administration increasingly addresses new controlling models, comprehensive management approaches, and efficiency-raising organization processes [statement] because the cost pressure is higher and the budget needs to be overhauled [reason].“

Put colons/periods

- **Example:** „The assumption that the body is not only a shell but that the body reflects internal elements has encouraged researchers (and allegedly researchers) for hundreds of years.“
- **Better:** „The body is not only the shell of a human. In fact, the body reflects internal elements. This assumption has encouraged researchers (and allegedly researchers) for hundreds of years.“

Don't separate compound verbs (1/2)

- Separating compound verbs induces nesting
 - Example: In the course of investigations of the retail industry, we **have**, for example, besides concrete guidance for the retail industry, especially **recommended** comprehensive activities to foster the overall attractiveness of the county Osnabrück – including the areas attractiveness of town planning, reachability, and variety of offers.

Don't separate compound verbs (2/2)

- Recommendation: Use simple verbs rather than compound verbs
 - **inform** rather than **give information**
 - **participate** rather than **sit in on**
 - **recite** rather than **give a recitation of**
 - ...

I, one, or we?

- Use *I* (1 author), *we* (multiple authors), or *one*
- If you are the only author, use *we* only in exceptional cases, for example as rhetorical *we*:
„*We* have to think about ...“
- **Recommendation:** Ask your advisor about their preferred form.

Outline

1. Core components of the thesis
 - Introduction
 - Main part
 - Conclusion
2. Scientific reasoning
3. Style of writing
- 4. **Quoting**
5. Formal requirements

Basic rules

- **Directness:** Quote the primary source, not a secondary source. In case the primary source is not available, a *trustworthy* secondary source may be quoted.
- **Exactness:** Literal exactness includes obsolete and false spelling or punctuation. When quoting literally, textual and orthographic mistakes must be adopted. Use [!] to denote that you didn't make the mistake.
- **Appropriateness:** The quote should contain what you want to prove. It has to be large enough, yet not larger than necessary for your purpose. Your own reasoning determines the length of the quote.

APA – In-Text Citations (1/3)

- Use **abbreviated** citations in the text
 - Family name(s), year, page numbers
- For citations spanning **more than one page**, a hyphen (e.g., pp. 5-7) or f. and ff., respectively, (e.g., pp. 5f.) must be used.
- Add **first name** only to prevent confusion (for authors with the same last name)
- Omit **academic degrees and titles**

APA – In-Text Citations (2/3)

- Examples
 - **Direct quote**
 - “[...] um das Ergebnis zu erreichen?” (Krcmar, 1988b, p. 11)
 - **Indirect quote**
 - It is not sufficient to achieve just the result (Krcmar, 1988b, pp. 11-13).
 - According to Rogers (1983, pp. 11f.) ...

APA – In-Text Citations (3/3)

- Quote a work by **two authors** as follows
 - (Eistert & Krcmar, 1995, p. 10)
- **Three to five authors**
 - First time you cite the source: (Eistert, Krcmar, & Schwarzer, 1995, p. 10)
 - In subsequent citations: (Eistert et al., 1995, p. 10)
- **Six or more authors**
 - (Eistert et al., 1995, p. 33)
- **Two or More Works** in the Same Parentheses
 - (Eistert, 1995, p. 25; Krcmar, 1995, p. 10; Schwarzer, 1993, p. 33)

APA – Bibliography

- The bibliography has to contain all **sources referenced** in the text or appendix
- Accordingly, **sources not referenced** in the text must not be included in the bibliography
- Sources of **figures** and **tables** must be added as well

APA – Bibliography: Monographs

- **Generally**
 - Author, A. (year of publication). *Title of work* (ed.). Location: Publisher.
- End each entry with a **period**.
- Separate title and subtitle with a **dash** or **colon** unless denoted differently in the original edition.
- **Examples**
 - McGrath, J. E. (1984). *Groups: Interaction and Performance*. Englewood Cliffs: Prentice-Hall.
 - Nieschlag, R., Dichtl, E., & Hörschgen, H. (1994). *Marketing* (17th ed.). Berlin: Dunker und Humbolt.
 - Gutenberg, E. (1984). *Grundlagen der Betriebswirtschaftslehre: Band 2: Der Absatz* (17th ed.). Berlin: Springer.

APA – Bibliography: Collected editions, reference books, festschrifts

- Cf. Monographs
- Additionally, add **Ed(s).** after the editor(s)
- **Example**
 - Krcmar, H. (1987). Datenintegration und Funktionsintegration. In P. Mertens (Eds.), *Lexikon der Wirtschaftsinformatik* (pp. 109f.). Berlin: Springer.

APA – Bibliography: Journal and newspaper articles

- **Generally:**
 - Author, A. (year of publication). Title of work. *Title of journal/newspaper*, volume number(issue number), page(s).
- Titles of journals and newspapers are usually abbreviated → Add to list of abbreviations
- Page numbers are compulsory, location is not necessary.
- **Examples**
 - Dennis, A. R. ~~et al.~~ (1988). Information Technology to support electronic meetings. *MIS Quarterly*, 12(4), 591-624. → **Never use „et al.“ in the bibliography but state all authors!**
 - *Der Paragraph 7 b bleibt erhalten* (1984). *FAZ*, 142, 9-10.

APA – Bibliography: Electronic publications

- **Generally:**
 - Author, A. (year of publication). Title of work. Retrieved Month Day, Year, from URL
- No period at the end of an entry!
- **Example**
 - Klein, S. (n.d.). *Virtuelle Organisation - Informations- und kommunikationstechnische Infrastrukturen ermöglichen neue Formen der Zusammenarbeit*. Retrieved April 2, 1997, under <http://www-iwi.unisg.ch/iwi4/cc/genpubs/virtorg.html>

Outline

1. Core components of the thesis
 - Introduction
 - Main part
 - Conclusion
2. Scientific reasoning
3. Style of writing
4. Quoting
- 5. **Formal requirements**

Tables

Use tables this way:

	Januar	Februar	März	Summe
Ost	7	7	5	19
West	6	4	7	17
Süd	8	7	9	24
Summe	21	18	21	60

	Januar	Februar	März	Summe
Ost	7	7	5	19
West	6	4	7	17
Süd	8	7	9	24
Summe	21	18	21	60

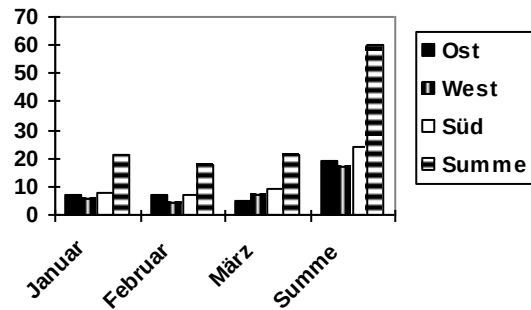
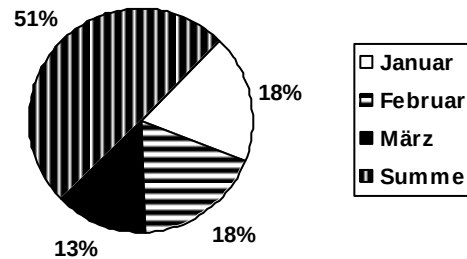
Never that way:

	Januar	Februar	März	Summe
Ost	7	7	5	19
West	6	4	7	17
Süd	8	7	9	24
Summe	21	18	21	60

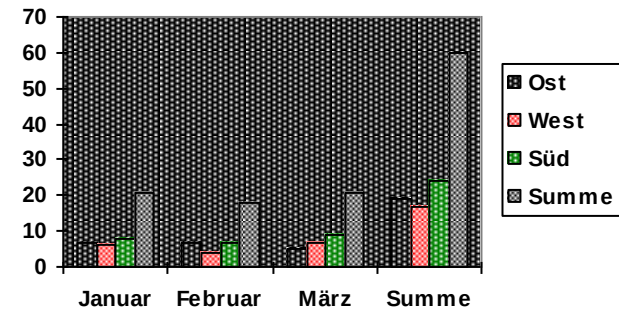
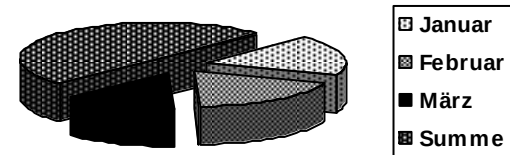
	Januar	Februar	März	Summe
Ost	7	7	5	19
West	6	4	7	17
Süd	8	7	9	24
Summe	21	18	21	60

Figures

Use figures this way:



Never that way:



Literature

Core literature:

Stickel-Wolf, C., & Wolf, J. (2001). *Wissenschaftliches Arbeiten und Lerntechniken* (1st ed.). Wiesbaden: Gabler Verlag. (pp. 165-182)

Richtlinien für Studentische Arbeiten und Dissertationen am Lehrstuhl für Wirtschaftsinformatik (2012). Retrieved August 12, 2013, under [http://www.winfobase.de/winfobase/cms_winfobase.nsf/\(ynDK_FileContainerByKey\)/WINR-5WRKRA/\\$FILE/Richtlinien%20Wissenschaftliche%20Arbeiten_v4.9.pdf](http://www.winfobase.de/winfobase/cms_winfobase.nsf/(ynDK_FileContainerByKey)/WINR-5WRKRA/$FILE/Richtlinien%20Wissenschaftliche%20Arbeiten_v4.9.pdf)

Deepening literature:

Schneider, W. (2000). *Deutsch für Kenner: die neue Stilkunde. Ungekürzte Taschenbuchausgabe* (5th ed.). München: Piper.

Franck, N., & Sary, J. (2003). *Die Technik wissenschaftlichen Arbeitens: eine praktische Anleitung* (11th ed.). Paderborn: Schöningh.

Session 4: Presentation techniques

Technische Universität München
Lehrstuhl für Wirtschaftsinformatik

Learning Objectives

Learning Objectives

*Ability to create a **scientific presentation** based on the content of your thesis.*

*Ability to convey the **core statements** to the audience in an **exciting** way without exceeding the **timeframe**.*

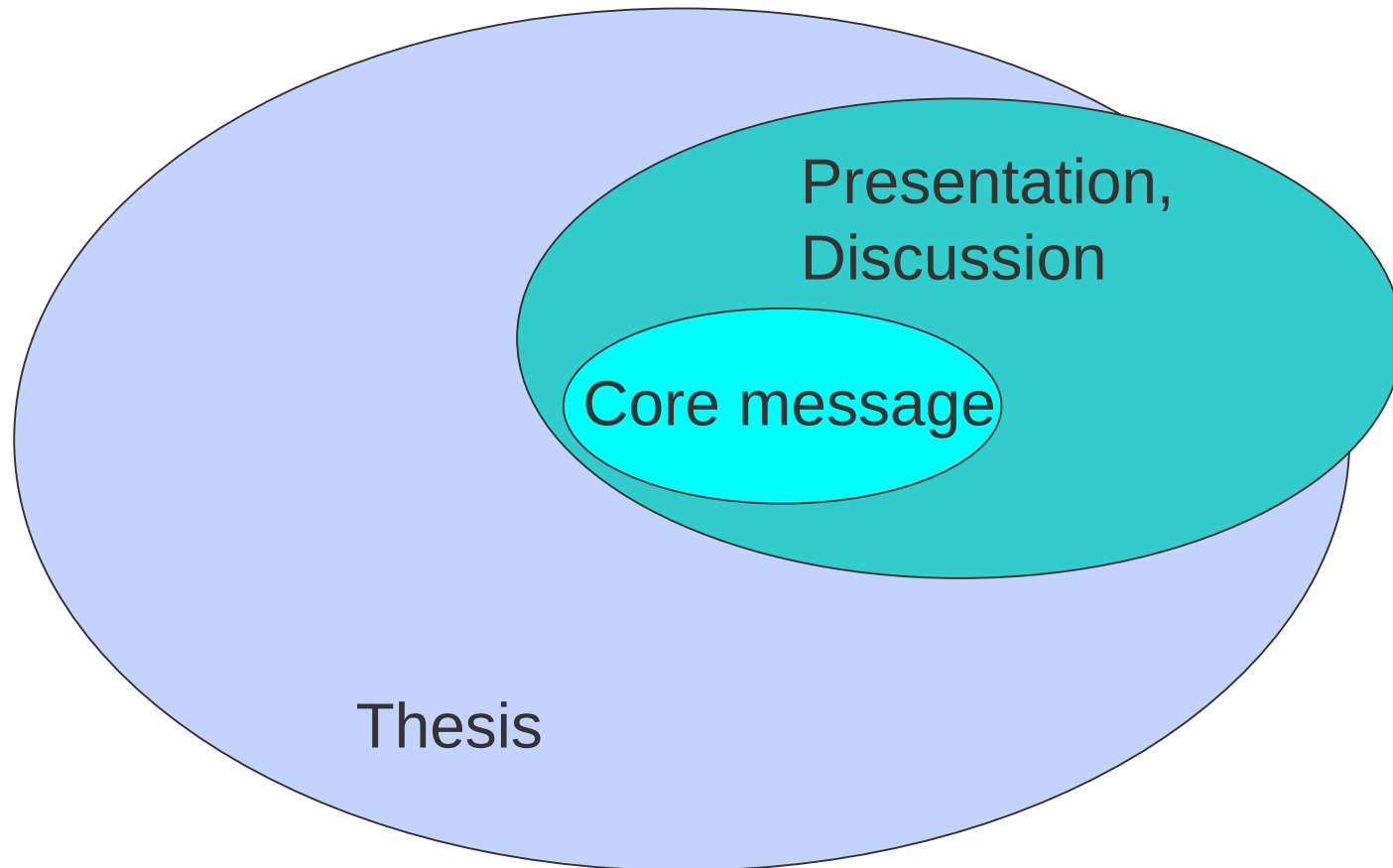
Central Issue

How do I create and give a scientific presentation?

Outline

- **1. Design the slides**
- 2. Prepare the talk

Select what you want to present (1/2)



Select what you want to present (2/2)

- Decide on what you want to talk about
 - From your thesis
 - Identify and condense the **key ideas**
- Organize the ideas
 - **Sequence** of presentation
 - Level of detail
 - Findings/Implication

Structure the slides

- Common thread
 - **Consecutive**, plausible, and systematic line of thought
 - Modular structure
- Structure different ideas as units/modules
 - Use headings, subheadings, and numerations

(Stickel-Wolf & Wolf, 2001, pp. 234f.)

Simplify complexity



iPod. One thousand songs in your pocket.

Illustrate numbers

- **Computational Power** of SuperMUC (supercomputer at Leibniz-Rechenzentrum)
 - Approximately **3 petaFLOPS**
 - **150,000 powerful laptops** (2010)
 - **3 billion people** each using a calculator and doing **1 million calculations** at the same time

Suggestions (1/3)

- Use only **key words & phrases**
- Use 4-5 **points** per slide
 - Less if there are sub-points
- At most 1 or 2 **ideas** per slide

It is not a good idea to make each slide too wordy by using complete and long sentences, since you don't want your audience to focus on trying to read everything that is on the slide, rather you would like them to pay attention to what you are saying.

Suggestions (2/3)

- **Font** – simple and commonly used (e.g., Arial)
 - More than one Font should not be used
 - Do not capitalize unnecessarily
- **Font size** – no less than 18
 - Use size to indicate importance and hierarchy
 - This is in size 12
- **Font color** – be consistent
 - Contrasting colors to highlight differences
- Be careful of **typos**, **grammatical mistakes**!

Suggestions (3/3)

- Choose a simple **template**
 - Light background, contrasting text (black on white)
- Make use of **bullets** to structure appropriately
- **Illustrations** and **images** instead of text
- **Animations**
 - Use judiciously
 - Too much can be distracting

Design the slides

- 1st Slide – Title, Your Name, Date
- 2nd Slide – Motivation
 - Interesting Quote
 - Figure or Illustration
 - Graphs or tables
- 3rd Slide – Outline
 - Tell your audience what you are going to tell them about
- ...
- Conclusion – The key takeaway
- Questions

**Something to capture
your audience's interest**

THIS IS A GOOD EXAMPLE OF

- Distracting background
- Text colour makes it difficult to read
- Text size is too small here
- THIS IS NOT A COMMONLY USED FONT
- We can make it even worse by adding some more text, like whole paragraphs from the thesis, obscure figures, and unnecessary animation.



Impact of colors (1/10)

black = burdening, high tech, formal

Impact of colors (2/10)

purple = knowing

Impact of colors (3/10)

red = passion, excitement, aggression

Impact of colors (4/10)

yellow = optimism, happiness, imagination

Impact of colors (5/10)

orange = warmth, garish

Impact of colors (6/10)

green = nature

Impact of colors (7/10)

brown = soil, plainness

Impact of colors (8/10)

blue = quiet, confidence, security

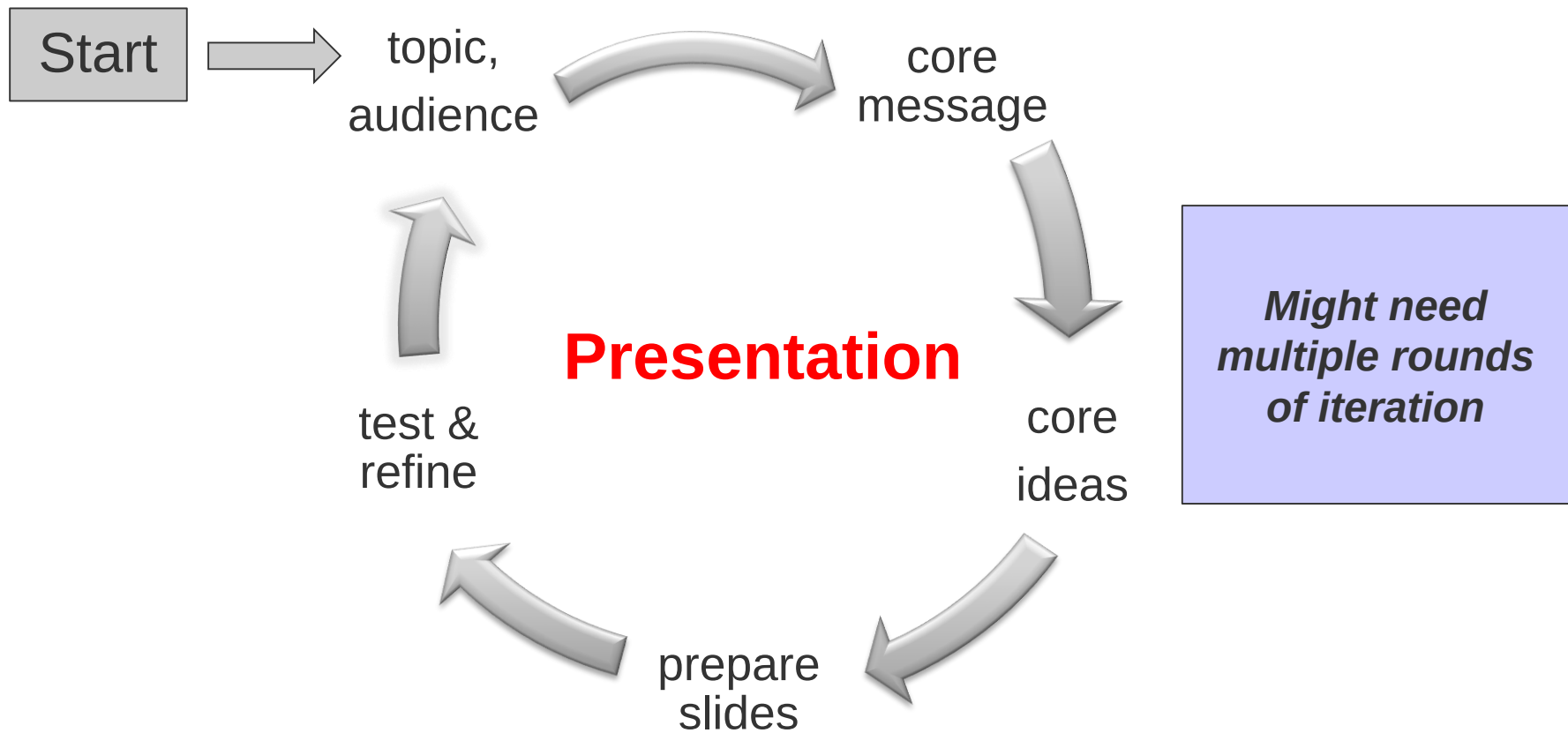
Impact of colors (9/10)

grey = conservative, convenient, reliable, safe

Impact of colors (10/10)

white = purity

Conclusion

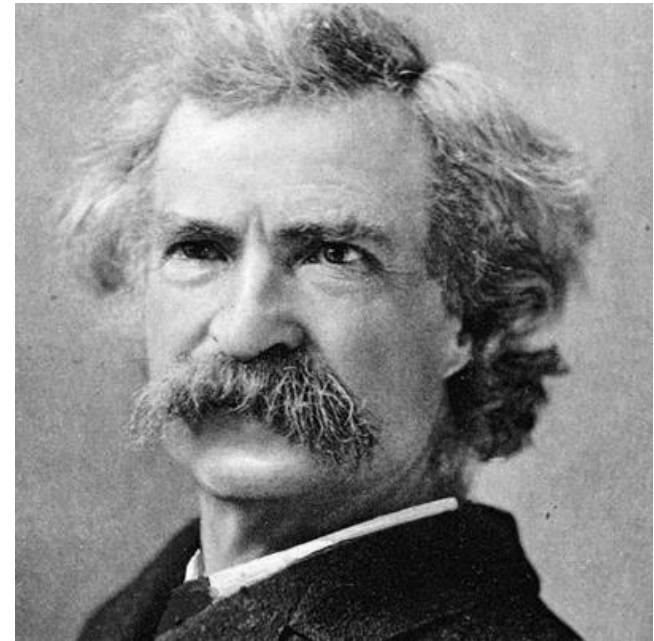


Outline

1. Design the slides
- 2. **Prepare the talk**

Structure the presentation

The best way to make a good speech is to have a good beginning and a good ending – and have them close together.



(Mark Twain)

Preparing for the talk (1/4)

- Prepare according to your allotted **time**
 - 1-2 minutes per slide
 - Don't cram too much information
- Decide on how you want to **start**
 - Address & welcome
 - Brief introduction about yourself (depending on the audience)

Preparing for the talk (2/4)

- Spend time talking about the **motivation** and **introduction**
- **Flow of ideas**
 - Sequential
 - Avoid jumping from one idea to the other
- Emphasize on what you want the audience to **retain**
 - They are anyway going to only retain 1 or 2 ideas
- Leave some time for **questions**

Preparing for the talk (3/4)

- **Practice**
 - Use notes if required
 - Start well ahead in time
 - Speak out loud
 - Time yourself and adjust accordingly
 - Very difficult to cut short during the presentation
 - Try to get feedback from others

Preparing for the talk (4/4)

- What **else**?
 - Check out the location/room
 - Test the infrastructure provided
 - Do you need to bring your own notebook?
 - Projector?
 - Load your own slides into the PC/notebook that will be used for the presentation

You don't want to waste valuable presentation time working out these details with your audience sitting in front of you!

Address the audience

- **Information about audience** helps to
 - generate/maintain their interest
 - speak their language
- **Helpful questions**
 - Is the group homogenous (e.g., profession, prior knowledge, age)?
 - What interest drives a single participant to join the meeting?
 - ...

Delivering the talk

- **Body language** – being relaxed & confident helps
 - Comes from practice!
- Try to maintain **eye contact**!
- Treat your audience with **respect**
 - Listen to questions carefully
 - Repeat to confirm if necessary
 - Don't assume them to be stupid!
 - Try not to disagree too much with your audience

Only few of us are naturally good speakers, but with practice we can get somewhere close.

Reasoning – Rule of five

- In the presentation, the rule of five is often underpinned by **contrastive reasoning** (thesis – antithesis – synthesis). Five different rules of five exist
 - Linear rule of five
 - Parallel rule of five
 - Discrepant rule of five
 - Divergent rule of five

Speech strategies (1/4)

Linear rule of five



- ①
- ②
- ③
- ④
- ⑤

1: The general background

2: The special problem

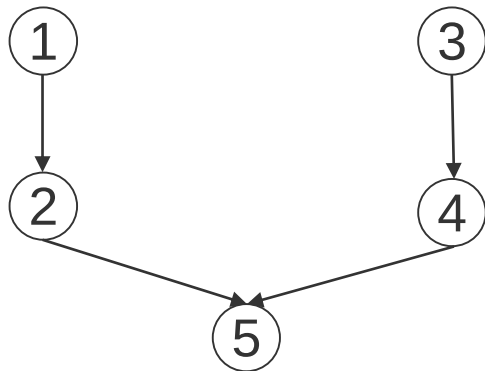
3: The approach ...

4: ... leads to the following data

5: Interpretation/consequences

Speech strategies (2/4)

Parallel rule of five



1: Schneider found that ...

2: ... and interpreted as follows.

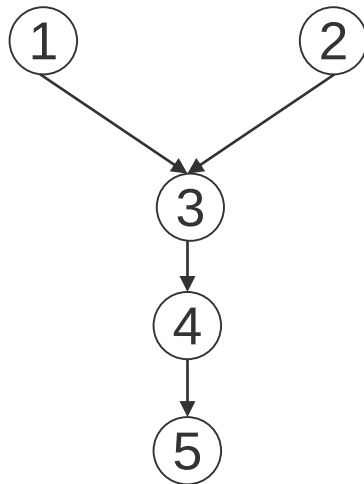
3: However, Bauer found that ...

4: ... and interpreted differently.

5: This new interpretation explains both results.

Speech strategies (3/4)

Discrepant rule of five



1: Schneider found that ...

2: Bauer found that ...

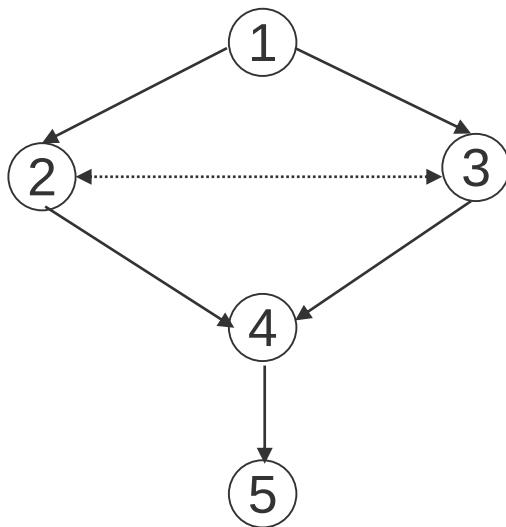
3: ... leading to the following discrepancy.

4: Our investigation ...

5: ... points in the following direction.

Speech strategies (4/4)

Divergent rule of five



1: Presentation of a problem

2: Previously unresolved questions

3: Our results ...

4: ... leading to a new interpretation ...

5: ... with the following consequences

Conclusion

1. Choose a motto
2. Provide a preview
3. Clearly introduce and complete each part; lead over to following parts
4. Be enthusiastic
5. Sell an experience
6. Make numbers speak (compare them)
7. Make images speak
8. Put on a show for the audience
9. Practice, practice, practice

Literature

Core literature:

Seifert, J. W. (2001). *Visualisieren – Präsentieren – Moderieren* (17th ed.). Offenbach: Gabal. (pp. 47-78)

Stickel-Wolf, C., & Wolf, J. (2001). *Wissenschaftliches Arbeiten und Lerntechniken* (1st ed.). Wiesbaden: Gabler Verlag. (pp. 234-236)

Deepening literature:

Barenberg, A. (1994). *Die überzeugende Präsentation - Dramaturgie, Visualisierung, Methoden, Technik*. München: Humboldt.

Budiu, M. (o.D.). *Some Rules for Making a Presentation*. Retrieved August 15, 2013, under <http://www.cs.cmu.edu/~mihaib/presentation-rules.html>

Hill, M. D. (1997). *Oral Presentation Advice*. Retrieved August 15, 2013, under <http://pages.cs.wisc.edu/~markhill/conference-talk.html>

Singh, S. (2006). *How to make effective presentation*. Retrieved August 15, 2013, under http://de.slideshare.net/satyajeet_02/how-to-make-effective-presentation