

Final Thesis Preparation (FTP) - Vorbereitung von Abschlussarbeiten (VBA)

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<http://st.inf.tu-dresden.de/teaching/vba>

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Contents

- ▶ Part 0: Introduction
 - 1) Overview of the research process OI*SDR
- ▶ Part I: Research Management
 - 2) Self management and project planning
 - 3) Bachelor thesis, Belegarbeit and other kinds of reports
- ▶ Part II: Gathering information
 - 20) Gathering
- ▶ Part III: Problem solving
 - 30) Problem Solving
- ▶ Part IV: Argumentation and Structuring
 - 40) Writing controlling ideas for unity and coherence
 - 41) Writing essays
- ▶ Part V: Talking

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Outline of the Course

Production

Writing essays

Structuring and
Argumentation

Controlling ideas

Problem solving

Problem Solving

Information gathering

Overview

Research reports

OISDR research process

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Knowledge and Science...

- ▶ Es gibt bekanntes Wissen. Das sind Sachen, von denen wir wissen, dass wir sie wissen.
- ▶ Es gibt bekanntes Unwissen. Das bedeutet, es gibt Sachen, von denen wir wissen, dass wir sie nicht wissen.
- ▶ Aber es gibt auch unbekanntes Nichtwissen. Das sind Sachen, von denen wir nicht wissen, dass wir sie nicht wissen.

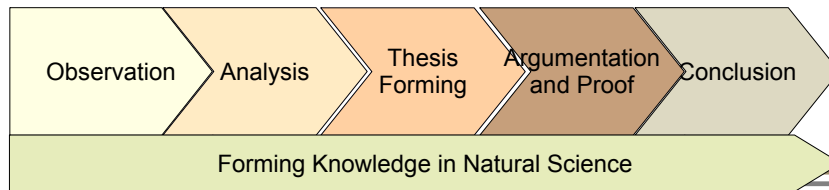
- ▶ Donald Rumsfeld

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Rules of Deduction (Schlussregeln)

- ▶ Open World Assumption (OWA)
- ▶ "alles, was ich nicht weiß, könnte wahr sein"
- ▶ Closed World Assumption (CWA)
- ▶ "alles, was ich nicht weiß, ist falsch"
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5

Important Literature - Writing

- ▶ [Bünting] Karl-Dieter Bünting. Axel Bitterlich, Ulrike Pospiech. Schreiben im Studium. Ein Trainingsprogramm. Cornelsen-Scriptor.
- ▶ [Parks] A. Franklin Parks, James A. Levernier, Ida Masters Hollowell. Structured Paragraphs and Essays. Bedford/St. Martins. (A wonderful basic book about writing.)
- ▶ [Schaum] Molly McClain, Jacqueline D. Roth. Schaum's Quick Guide to Writing Great Essays. McGraw-Hill.
- ▶ [Pellegrino] Victor C. Pellegrino. A Writer's Guide to Powerful Paragraphs. Maui arThoughts Company, Hawaii.
- ▶ [Ross] Bruce Ross-Larson. Powerful Paragraphs. W. W. Norton.
- ▶ [WiCo] Joseph M. Williams, Gregory G. Colomb. Style – Toward Clarity and Grace. The University of Chicago Press.
- ▶ [Rotter/Bendl] Your Companion to English Texts. Comprehension Analysis Appreciation Production. Manz-Verlag, 1978

6

Other Literature

- ▶ [SGHM08] Dirk Siepmann, John D. Gallagher, Mike Hannay, and J. Lachlan Mackenzie. Writing in English: A Guide for Advanced Learners. Number 3124 in UTB. A. Francke, 2008.
- ▶ Mike Markel. Technical Communication, free book. 10th Edition. Bedford St Martin's. http://www.ebook3000.com/Technical-Communication--10th-Edition_173076.html
- ▶ [Turner] Adam Turner. English Solutions for Engineering and Sciences Research Writing: A guide for English learners to publish in international journals. English Writing Lab Center for Teaching and Learning and College of Engineering, Hanyang University, Seoul, Korea
 - www.hanyangowl.org

7

Literature - Argumentation

- ▶ [BWC] Wayne C. Booth, Joseph M. Williams, Gregory G. Colomb. The Craft of Research. The University of Chicago Press.
- ▶ [Thiele] Albert Thiele. Die Kunst zu überzeugen. Faire und unfaire Dialektik. Springer.
- ▶ [Leicher] R. Leicher. Verkaufen. TaschenGuide. Haufe-Verlag.
- ▶ [Scherer] Hermann Scherer. 40 Minuten für eine gezielte Fragetechnik. Gabal Verlag

8

Literature: Writing Research Papers

- ▶ [Gonzalez] Fabio A. Gonzalez. Writing a Research Paper Depto. de Ing. de Sistemas e Industrial Universidad Nacional de Colombia, Bogota

Literature: Science and Research

- ▶ [RomEnd] Albert Endres, Dieter Rombach. A Handbook of Software and Systems Engineering. Empirical Observations, Laws, and Theories. Pearson.
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 - [SchmidtMoral] Helmut Schmidt. Auf der Suche nach einer öffentlichen Moral. Deutschland vor dem neuen Jahrhundert. Goldmann.
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 - The Politics of the Prussian Army. Oxford University Press.
- ▶ [Craig-Germans] Gordon Craig. The Germans, Meridian.
 - Über die Deutschen. C.H.Beck-Verlag.
- ▶ [Craig-Germany] Germany 1866-1945. Oxford University Press.
 - Deutsche Geschichte 1866 - 1945: Vom Norddeutschen Bund bis zum Ende des Dritten Reiches. C.H.Beck

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 - ▶ <http://www.gutenberg.org/cache/epub/30047/pg30047.txt>
- ▶ [Assmuss] Eduard Assmuss. Parasiten der Honigbiene und die durch dieselben bedingten Krankheiten dieses Insects.
<http://www.gutenberg.org/cache/epub/19673/pg19673.txt>
- ▶ [Abbe] Ernst Abbe. Gesammelte Abhandlungen III. Vorträge, Reden und Schriften sozialpolitischen und verwandten Inhalts Editor: S. Czapski
<http://www.gutenberg.org/files/19755/19755-0.txt>
- ▶ [Abbott-Writing] Edwin A. Abbott. How to Write Clearly. Rules and Exercises on English Composition. <http://www.gutenberg.org/cache/epub/22600/pg22600.txt>
- ▶ [Abbot-Appeal] Francis Ellingwood Abbot. A Public Appeal for Redress to the Corporation and Overseers of Harvard University. Professor Royce's Libel.
<http://www.gutenberg.org/cache/epub/19768/pg19768.txt>
- ▶ [Bernstein] Eduard Bernstein. Der Sozialismus einst und jetzt. Streitfragen des Sozialismus in Vergangenheit und Gegenwart
<http://www.gutenberg.org/cache/epub/24523/pg24523.txt>
- ▶ [Guedella] Philip Guedalla. Some Historians. In: Modern Essays. Editor: Christopher Morley. <http://www.gutenberg.org/3/8/2/8/38280/>

References from Gutenberg

- ▶ [Rathenau] Walther Rathenau. Die Organisation der Rohstoffversorgung. Vortrag in der Deutschen Gesellschaft 1914, am 20. Dez. 1915. <http://www.gutenberg.org/files/21031/21031-0.txt>
- ▶ [Russell-Mysticism] Bertrand Russell. Mysticism and Logic and Other Essays
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- ▶ [Russell-Problems] Bertrand Russel. The Problems of Philosophy
<http://www.gutenberg.org/cache/epub/5827/pg5827.txt>
- ▶ [Russell-Bolshevism] Bertrand Russell. The Practice and Theory of Bolshevism, 1920
<http://www.gutenberg.org/1/7/3/5/17350/>
- ▶ [Schmucker-Lutherian-Churches] Beale M. Schmucker. The Organization of the Congregation in the Early Lutheran Churches in America. From the Lutheran Church Review, July, 1887. Philadelphia. <http://www.gutenberg.org/dirs/1/9/4/2/19422>
- ▶ [Sieveking] H. Sieveking, Moderne Probleme der Physik. TU Karlsruhe, 1913
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- ▶ [Stowe] Harriet Beecher Stowe, Onkel Tom's Hütte.
<http://www.gutenberg.org/cache/epub/31459/pg31459.txt>
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<http://www.gutenberg.org/cache/epub/33418/pg33418.txt>
- ▶ [Treitschke] Heinrich von Treitschke: Die Gründung des Deutschen Zollvereins.
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 - Achtung. Treitschke schreibt gut, aber er disqualifiziert sich durch seinen Antisemitismus
http://de.wikipedia.org/wiki/Heinrich_von_Treitschke

Examples from Free Ebook Portal of University of Adelaide

- ▶ [VannevarBush] Vannevar Bush. As We May Think. First published in The Atlantic Monthly, July 1945. This web edition published by eBooks@Adelaide . <http://ebooks.adelaide.edu.au/b/bush/vannevar/as-we-may-think/>



Examples from American Scholar

- ▶ www.americanscholar.org contains a lot of accessible essays about many different topics.



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Prof. Dr. Uwe Altmann Dr. Ingrid Isenhardt
Informatikwissenschaftler Informatikerin
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- [Parks] A. Franklin Parks, James A. Levenier, Ida Masters Hollowell. Structured Paragraphs and Essays. Bedford/St. Martins. (A wonderful basic book about writing.)
- [Schaum] Molly McClain, Jacqueline D. Roth. Schaum's Quick Guide to Writing Great Essays. McGraw-Hill.
- [Pellegrino] Victor C. Pellegrino. A Writer's Guide to Powerful Paragraphs. Maui atThoughts Company. Hawaii.
- [Ross] Bruce Ross-Larson. Powerful Paragraphs. W. W. Norton.
- [WIC] Joseph M. Williams, Gregory G. Colomb. Style – Toward Clarity and Grace. The University of Chicago Press.
- [Rotter/Bend] Your Companion to English Texts. Comprehension Analysis Appreciation Production. Manz-Verlag, 1978



Other Literature

- [SGHM09] Dirk Siepmann, John D. Gallagher, Mike Hannay, and J. Lachlan Mackenzie. Writing in English: A Guide for Advanced Learners. Number 3124 in UTB. A. Francke, 2008.
- Mike Markel. Technical Communication. free book. 10th Edition. Bedford St Martin's. http://www.ebook3000.com/Technical-Communication-10th-Edition_173076.html
- [Turner] Adam Turner. English Solutions for Engineering and Sciences Research Writing: A guide for English learners to publish in international journals. English Writing Lab Center for Teaching and Learning and College of Engineering, Hanyang University, Seoul, Korea
- www.hanyangowl.org



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 - [SchMidMoraj] Helmut Schmidt, Auf der Suche nach einer öffentlichen Moral, Deutschland vor dem neuen Jahrhundert, Goldmann.
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1

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