

ASEA UNINET

ASEAN-European
Academic
University Network
founded by Austria, Indonesia, Thailand and Vietnam in 199

Mission

enable and support cooperation between academic institutions in staff/student exchange, teaching and research activities





promote scientific, cultural and human relationships and personal contacts and to increase intercultural exchange and understanding



What we do

research and teaching

interdisciplinary

driven by researchers

organised within Universities

supported by governments









Types of Funding from Austrian Government

ASEA-UNINET Research Projects (for post-doc researchers from ASEA-UNINET member universities)

Duration: up to 6 mobilities in one academic year

Grant benefit: daily allowances, travel support (AT->Thailand)

Post-doc Grants (for post-doc researchers from ASEA-UNINET member universities)

Duration: 3-9 months (new!) Grant benefit: 1,250 euro p.m.*

PhD-Grants (for postgraduates, from any university)

Grant for a complete PhD programme in Austria

Duration: 36 months

Grant benefit: 1,150 euros p.m.*

• Sandwich-Grants (for PhD-students from ASEA-UNINET member universities)

Grant for a partial study period during a PhD programme in Austria

Duration: 9 months

Grant benefit: 1,150 euros p.m.*

• Music-Grants (starting from undergraduates, from any university, field of music practice)

Grant for study stay in music practice

Duration: 9 months

Grant benefit: 1,150 euros p.m.*

^{*} Additionally, scholarship holders receive a travel cost subsidy of max. 1,000 euros.



Application Procedure

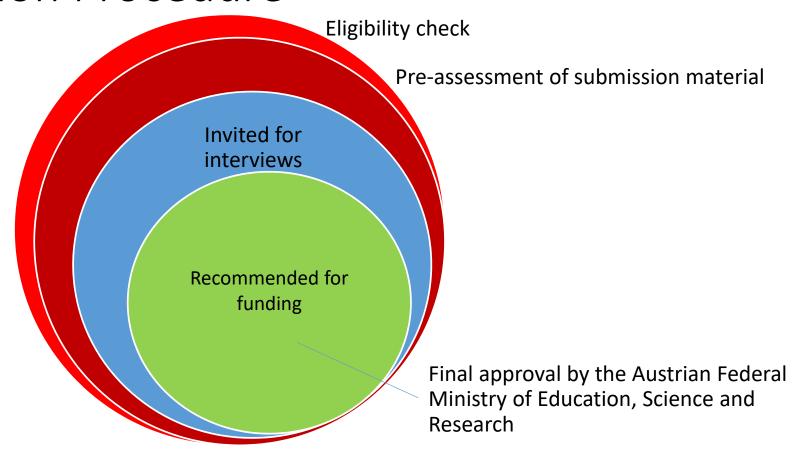
define field of research, draft a proposal

select and contact appropriate Host

work with host on your proposal collect all necessary documents for the application

Apply online

Selection Procedure



Outline

- What are scientific publications and why are they written?
- Content/structure of scientific papers/proposals and how to write a paper/proposal
- Some details on research methods/evaluation
- Literature/referencing (citing)
- Evaluation Criteria



Why is this relevant for you?

- You'll write (or have written)
 - a Bachelor's thesis
 - several seminar papers
 - a Master's thesis
 - scientific papers
 - a Doctoral thesis (Dissertation)?
 - habilitation thesis
 - research proposals
 - e.g., Research proposal for ASEA-UNINET grant application
 - → Details in talk by Prof. Kotsis
- Thesis vs. Paper vs. Proposal
 - Commonalities: basic structure, writing style (partly), scientific rigor/methods, (need for evaluation)
 - Differences: length/space, target audience, purpose

"FINAL".doc







FINAL_rev. 2. doc







FINAL_rev.6.COMMENTS.doc

FINAL_rev.8.comments5. CORRECTIONS. doc







FINAL_rev.18.comments7.

FINAL_rev.22.comments49. corrections9.MORE.30.doc corrections.10.#@\$%WHYDID ICOMETOGRADSCHOOL????.doc

WWW. PHDCOMICS. COM



Used/Useful Sources

- Simon Peyton Jones 2013. How to write a great research paper. Talk given at Cambridge, https://www.microsoft.com/en-us/research/academic-program/write-great-research-paper/ (accessed Jan 19, 2017).
- Steve Easterbrook 2012. How theses get written, some cool tips. Talk given at the University of Toronto, http://www.cs.toronto.edu/~sme/presentations/thesiswriting.pdf (accessed Jan 19, 2017).
- Joshua Schimel 2012. Writing Science: How to Write Papers That Get Cited and Proposals That Get Funded. 1st Edition. Oxford University Press.
- Justin Zobel 2004. Writing for Computer Science. 2nd Edition. Springer.
- Walter F. Tichy and Frank Padberg 2007. Empirical Methods in Software Engineering Research. In *Companion to the proceedings of the 29th International Conference on Software Engineering* (ICSE COMPANION '07). IEEE Computer Society, Washington, DC, USA, 163-164. DOI= http://dx.doi.org/10.1109/ICSECOMPANION.2007.33
- Lionel Briand 2017. Why and How To Get a PhD. ISSRE. https://www.slideshare.net/mobile/briand-lionel/why-and-how-to-get-a-phd-in-software-engineering (wrt writing papers, see esp. Slides 25-28)

What is the most reliable source and why?



Why do we write papers?

- Fallacy (Irrtum): we write and give talks mainly/on to impress others, gain recognition, get promoted
- Your goal: to infect the mind of your reader with your idea



- - Personal example: I frequently refer to a paper by David Parnas from 1976 (On the Design and Development of Program Families)
- The greatest ideas are (literally) worthless if you keep them to yourself

Influenced by Simon Peyton Jones, Microsoft Research, Cambridge

Purpose of a Paper/Proposal

- To convey your idea
- ...from your head to your reader's head
- Everything serves this single goal



NOT

- to purely describe your cool development/tool
- executable artifacts. Your reader is primarily interested in re-usable brain-stuff (ideas)!



Conveying the Idea -> Influences Structure!

- Here is a problem
- It's an interesting problem
- It's an unsolved problem
- Here is my idea
- My idea works (details, data)







www.phdcomics.com

- Here's how my idea compares to other people's approaches
- (This is what we I learned when developing my idea/solution that you might find useful = lessons learned)



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Typical Proposal Elements (Depends a lot on funding agency)

- Overview of Planned Research
- State of the Art
- Own earlier research/information on the Applicant(s)
- Open Research Issues/Investigated Research Questions
- Planned Research in more Detail incl. Eval Plan
- Research Contributions
- Collaborations
- Work Plan
- Staff
- Required Equipment and Facilities
- Schedule and Cost Plan



Writing: How do I get started?

- Do this ASAP (as now you have been assigned a topic):
 - Decide on a (working) title
 - Download the templates, start a file and write your title on the first page
 - (Look at some theses/papers in your area/for your topic and read them)
 - For proposals: get examples from colleagues (very helpful!)
 - Plan your argument (can become the abstract and will influence the structure)...
- You can change things later
 - But you can't change it unless you have something to change!



Argument

One sentence for each:	Example
Introduction (area of study)	
The problem (that I tackle)	
What the literature says about this problem	
How I tackle this problem	
How I implement my solution	
The result	

(c) Steve Easterbrook, University of Toronto



Argument

One sentence for each:	Example
Introduction (area of study)	"The success of a software development project depends on capturing stakeholders' needs in a specification
The problem (that I tackle)	"However, specifications often reflect the analyst's own bias, rather than the inputs of the many different stakeholders
What the literature says about this problem	"Current methods described in the literature fail to address identification and integration of multiple views.
How I tackle this problem	"By treating the specification activity as a dialogue between stakeholders, we can model each perspective separately.
How I implement my solution	"We provide a set of tools for exploring disagreement between perspectives, and use these tools as the basis for a computer- supported negotiation process.
The result	"This approach is shown to significantly improve traceability and validity of specifications and overall stakeholder satisfaction."

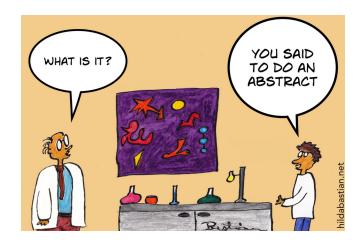
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Abstract

- Some write the abstract last, some first
- Used by program committee members/reviewers to decide which papers to read
 - → "the first impression"



- Four sentences [Kent Beck] = "Pitch Talk"/"Sales Pitch"
 - 1. State the problem
 - 2. Say why it's an interesting/relevant problem
 - 3. Say what your solution achieves
 - 4. Say what follows from your solution



. 23

Example Abstract

- 1. Many papers are badly written and hard to understand
- 2. This is a pity, because their good ideas may go unappreciated
- 3. Following simple guidelines can dramatically improve the quality of your papers
- 4. Your work will be used more, and the feedback you get from others will in turn improve your research

Introduction

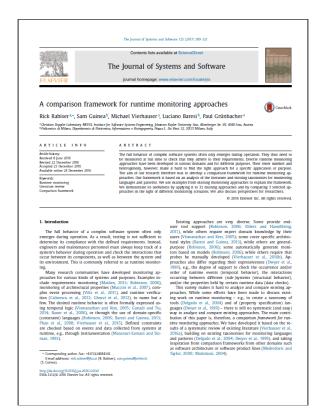
- 1. Describe the **problem**
- 2. State your **contributions**
- Optional
 - Introduce and briefly explain key concepts/terms
 - Give an overview of the paper structure

NOT

- A longer version of the abstract
 - Abstract is minimalistic overview (containing intro)
 - Introduction is the begin of the story



Introduction: Example



- The full behavior of a complex software system often only emerges during operation. As a result, testing [...] This is commonly referred to as runtime monitoring.
- Existing approaches are [...]
- This variety makes it hard to [...]
- The main contribution of this paper is, therefore [...]
- Specifically, we claim the following contributions: [...]

R Rebiser, S. Guinea, M. Vierhauser, L. Baresi, and P. Grünbacher, A Comparison Framework for Runtime Monitoring Approaches, Journal of Systems and Software, vol. 125(March), pp. 309-321, 20

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Problem, Idea, Implementation

- Concentrate single-mindedly on a narrative that
 - Describes the problem, and why it is interesting
 - Describes your idea
 - Defends your idea, showing how it solves the problem, and filling out the details
- On the way, cite relevant work in passing, but defer discussion to the end

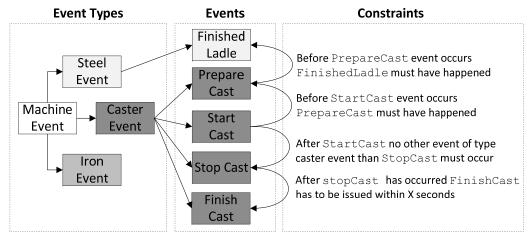
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CONVEYING THE IDEA

- In a paper you MUST provide the details, but FIRST convey the idea
- Introduce the problem, and your idea, using
 EXAMPLES and only then present the general case



Example Example:



M. Vierhauser, R. Rabiser, P. Grünbacher, C. Danner, S. Wallner, and H. Zeisel, A Flexible Framework for Runtime Monitoring of Systems Architectures, 11th Working IEEE/IFIP Conference on Software Architecture, Sydney, Australia



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Conveying the Idea

- Explain it as if you were speaking to someone using a whiteboard
- Conveying the idea is primary, not secondary
- Once your reader has got the idea, she can follow the details (but not vice versa)
- Even if she skips the details, she still takes away something valuable

Evaluation/Validation

Evidence!

- Your introduction makes claims
- The body of the paper provides evidence to support each claim
- Fyidence can be:
 - analysis and comparison (e.g., with other, similar approaches or benchmarks)
 - theorems (formal/mathematical proof)
 - empirical studies
 - Quantitative (e.g., measurements)
 - Qualitative (e.g., user studies)
 - e.g., experiments, case studies, surveys
- This is one of the key aspects that make it SCIENTIFIC
- For research proposals: Plan the evaluations you want to conduct, this has a huge influence on the required resources and credibility of your proposal



Science Theory/Basics

There's no such thing as "alternative facts", there's only alternative interpretations of facts

- Fact: Observations about the world around us
 - Example: "It's bright outside."
- **Hypothesis**: A **proposed explanation** for a phenomenon made as a starting point for further investigation
 - Example: "It's bright outside because the sun is probably out."
- Theory: A well-substantiated explanation acquired through the scientific method and repeatedly tested and confirmed through observation and experimentation
 - Example: "When the sun is out, it tends to make it bright outside."
- Law: A statement based on repeated experimental observations that describes some phenomenon of nature. Proof that something happens and how it happens, but not why it happens.
 - Example: Newton's Law of Universal Gravitation.



Related Work

• Fallacy (Irrtum): To make my work look good, I have to make other peoples' work look bad



It is a bad paper and, as a reviewer, I should reject it, but it cites five of my own papers...

- Giving credit to others does not diminish the credit you get from your paper
- Acknowledge weaknesses in your approach!
- Failing to give credit to others can kill your paper
- If you imply that an idea is yours, and the referee knows it is not, then either
 - You don't know that it's an old idea (bad)
 - You do know, but are pretending it's yours (very bad)
 - → Plagiarism, can cost you your career/title/position

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Conclusions and Future Work

- Summarize the paper in 2-3 sentences
- Provide an outlook on future work/list remaining issues
- Avoid new topics/findings!
- Avoid citations
- Acknowledgements (Optional)
 - Extra Section after conclusions, before reference list
 - If you want (or legally have) to thank a person or organization
- Paper/Proposal concludes with **References**



References/Literature/Citing

- Searching for literature is a separate lecture
 - Some hints:
 - http://scholar.google.com
 - "Snowballing" (check references cited in good papers, "jump" from paper to paper)
 - Look for papers with many citations (Google Scholar shows this!)
 - Not necessarily good papers, but well-perceived/-known work





Types of Literature

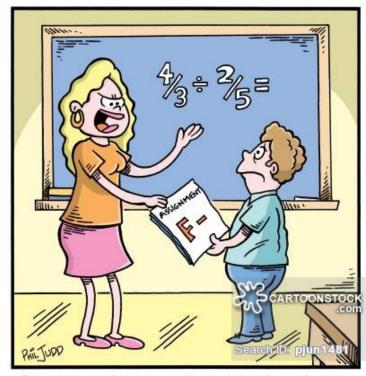
- Papers (will now show you one example each)
 - Scientific Journal (<u>link</u>)
 - Scientific Magazine (<u>link</u>)
 - Conference (<u>link</u>)
 - Workshop/Symposium (<u>link</u>)
 - Technical Report (link)

Books

- Textbooks ("well established" work)
- <u>Edited Books</u> (different chapters, different authors; recent work)

Theses

- Bachelor, Master, Doctoral, Habilitation
- Others (rather avoid in scientific work; sometimes good pointer to scientific papers though)
 - Internet sources (blogs, social media, Wikipedia, etc.)
 - Personal communication/notes



"No Jimmy! You can't cite Wikipedia as the main source for your assignment!"

Why Citing Existing Work?

- All work builds on existing work
- Citations
 - show use of or relation to existing work/work by others
 - allow to differentiate own contribution and others' contribution
- Source needs to be defined unambiguously for used
 - Text
 - Figures
 - Ideas
 - Models
 - Approaches
 - Results
- Making small changes is NOT sufficient to avoid citing
- Using others' work/text without citing → plagiarism



Types Of Citations

- Direct (1:1) citation
 - To be avoided, only for key definitions of terms and concepts
 - Has to be a real 1:1 copy (including any typos)
 - Has to be clearly marked
 - e.g., As argued by Rabiser et al. "frequent changes to a constraint DSL will be necessary in practice to iteratively improve its alignment with the domain" [2].

• Indirect citation

- Repeats/summarizes what others wrote
- Also if you translate (e.g., from English to German)
- Preserves the meaning but can change wording/shorten
 - e.g., Rabiser et al. argued that constraint DSLs will need to be changed frequently to better align them with a particular domain [2].



Content of References In Reference List

- Author names, Title, Venue name (journal, magazine, conference, ...)
- Venue location (if conference or workshop)
- Booktitle and Editors (if chapter of a book)
- Volume and number (if journal or magazine)
- Pages, Publisher, Year
- DOI (Digital Object Identifier, unique URL to publication)
- (accepted for publication) or (to appear) → use DOI if possible!
- etc.
- Must allow to uniquely identify a source
- Also defined by the author/citation guidelines



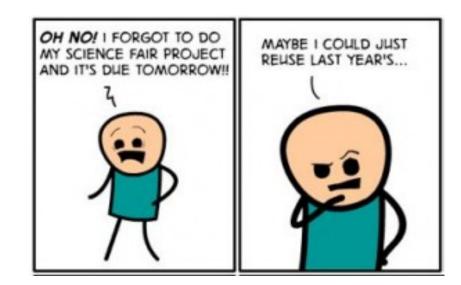
Hints to Cite Correctly

- Read the author/citation/style guidelines!
 - Particularly check the provided examples
- Identify the type of a publication (journal/magazine vs. conference/workshop/symposium vs. book/thesis/report)
- Do not overuse DOIs or URLs in references, only if necessary/helpful to uniquely identify a reference, e.g., when not yet published
 - e.g., F. Fittkau, A. Krause, and W. Hasselbring, "Software landscape and application visualization for system comprehension with ExplorViz," *Information and Software Technology*, 2016 (in press; doi: 10.1016/j.infsof.2016.07.004).
- If you use a Web source, you have to add when you watched/downloaded the source, e.g., (accessed Feb 14, 2019), because later the source might be (re-)moved
 - This is also a reason why Web sources should be avoided



Plagiarism

- Not to be taken lightly! It is Fraud!
- Think of Theodor Gutenberg and other prominent (also recent) examples
- Possible consequences
 - Negative mark
 - Loosing academic degrees
 - Legal proceedings
- JKU (must) checks for plagiarism



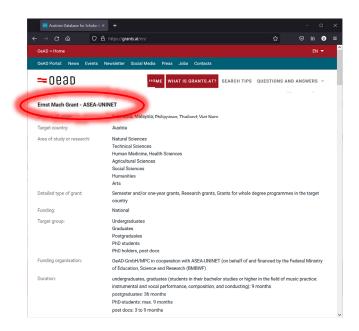
There is also self-plagiarism

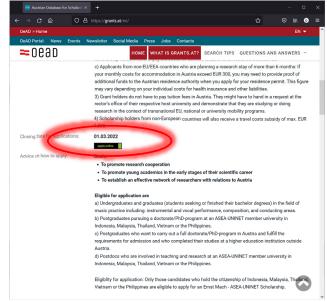


Evaluation Criteria

- Completeness and eligibility of the application (formal requirements)
- Language and Communication Skills
- Quality of Proposal
- Output
- Impact
- Overall
- International Visibility (for PostDocs only)









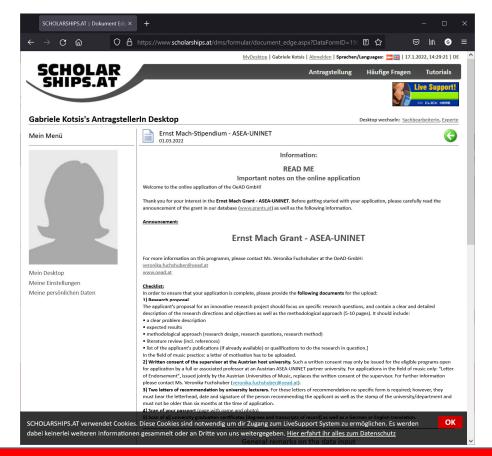
https://grants.at/en/

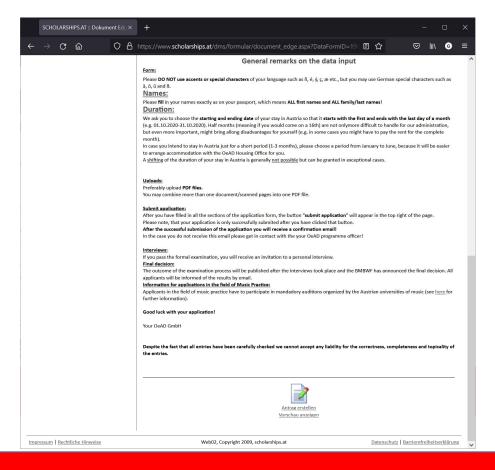


- Written consent of the supervisor at the Austrian host university. Such a written consent may only be issued for the eligible programs open for application by a full or associated professor at an Austrian ASEA-UNINET partner university.
 In the field of music practice: "Letter of Endorsement", issued jointly by the Austrian Universities of Music, replaces the written consent of the supervisor. For further information please read the FAQs
- Two letters of recommendation by university lecturers. For these letters of recommendation no specific form is required; however, they must bear the letterhead, date and signature of the person recommending the applicant as well as the stamp of the university/department and must not be older than six months at the time of application.
- Scan of your passport (page with name and photo).
- Scan of all university graduation certificates as well as a German or English translation.
- Application and further information
 - one call per year
 - Grant announcement and link to the online application form: www.grants.at/en (https://grants.at/de/?=MjA3NzFfMjE5MzRfMA)



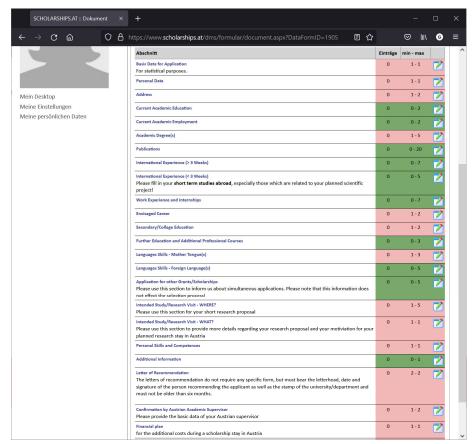
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- All mandatory fields filled in
- All eligibility criteria are met





Evaluation Criteria: Language

- Are your communication skills (in English) sufficient for doing the research (in Austria)?
- Self assessment on a scale of A1-C2 in
 - Understanding
 - Speaking
 - Writing
- Evaluation based on
 - Language Certificates
 - Quality of text written in the application (writing)
 - Not only proposal but also free text fields
 - Be careful in filling in the sections "What" and "Where" when describing your intended research visit
 - Performance in verbal interviews (speaking and understanding)



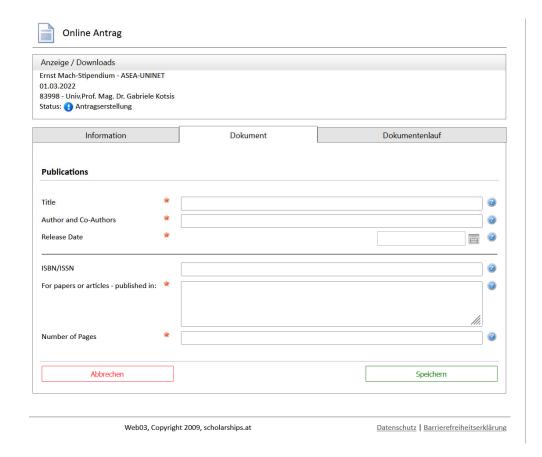
Evaluation Criteria: International Visibility

- (Has your scientific work already been recognized in the scientific community?
- To what extend are you already embedded in the international scientific community?
- Assessment (mandatory for PostDocs, optional for PhD)
 - Publication record
 - International visits
 - Letters of recommendation
 - Research profiles (e.g. Google scholar)



Recommendations: Publications

- Mandatory for PostDocs, optional for PhD applications
- What is considered in the assessment?
 - · area of work should be reflected in publications
 - (international) co-authors
 - timeline of publications (in relation to your graduation dates)
 - recognised publication output
 - give DOI if available





23 4.

Recommendations: Letters of recommendation

Mandatory

- Submit two letters of recommendation by university lecturers
- must bear the letterhead, date and signature of the person recommending the applicant (as well as the stamp of the university/department)
- must not be older than six months at the time of application

Good if

- They come from two different institutions
- Clearly explain the relation of recommender and applicant
- Highlight why the applicant is recommended



Recommendations: Letter of Consent

- Must be / contain
 - issued by a full or associated professor at an Austrian ASEA-UNINET partner university
 - written consent of the supervisor at the Austrian host university
 - Applicant's (student / researcher) name
 - intended period of stay (must be consistent with application form)
 - topic / short explanation of the work to be done
 - date, stamp (if possible), signature
- Additionally welcome
 - arguments why student / researcher fits into the research group in Austria
 - expected output
 - Previous collaborations

• ...



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Evaluation Criteria: Proposal

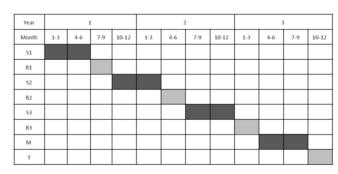
- Research proposal (5-10 pages)
 - a clear problem description
 - expected results
 - methodological approach (research design, research questions, research method)
 - literature review (incl. references)
 - list of the applicant's publications (if already available) or qualifications to do the research in question
- Reviewers will assess
 - Structure
 - Content
 - Clarity



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Recommendations: Research Proposal

- Well structured (title, sections, illustrations, page numbers)
 - Section headings should correspond to what reviewers need to assess (introduction/SOTA, methodology, expected results, work plan, references)
- Nicely formatted
- Easy to read
 - Use bullet lists
 - Use figures and charts explaining your methodology
 - Include a time table with the envisioned tasks



Task	
S1	Synthetic nitrogen containing compounds (12a-12j)
B1	Biological evaluation values of compounds 12a-12j
52	Synthetic oxygen containing compounds (12k-12p and 12w-12x)
B2	Biological evaluation values of compounds 2k-12p and 12w-12x
53	Synthetic nitrogen containing compounds (12q-12v and 12y-12z)
В3	Biological evaluation values of compounds 12q-12v and 12y-12z
М	Manuscript preparation
Т	Thesis defense



Recommendations: Research Proposal

- Why is your research work innovative?
 - Briefly describe the current state of the art (what others have been doing)
 - Clearly show the advances over the state of the art (what you will be doing)
 - Must be understandable for non-domain experts
 - Must be justified by references to literature (including your own previous research work and that of your host professor)
- What are the research objectives?
 - Why is it relevant to do this type of research?
 - Who will benefit from the results? (see also impact)
 - Are the research questions well defined?
 - What is the central hypothesis?
 - What would you like to find out?



Recommendations: Research Proposal

- How are you planning to do your research?
 - What methodologies are you going to use?
 - When are you planning to do what? (workplan AND time table)
 - (Wha) are you capable of doing this researck work?
 - Why is your host an appropriate (the best?) cooperation partner for this research?
 - What kind of resources do you need?
 - Are there any risks associated to that project and how are you planning to overcome those? (typically asked at the interviews!!)



Evaluation Criteria: Output

- What will be the (most important) results of your work?
- Specify clearly in the proposal what the expected outcome of your research work will be
- Give arguments why this research is relevant!
- This includes
 - Thematic description
 - Type of output (e.g. guidelines, new materials developed, new research methods, ...)
 - Format of Output (paper publications, conference talks, seminars, follow-up research proposals, ...)
 - Time line of "dissemination" of results



Evaluation Criteria: Impact

- Who will benefit from the results of your work in what way?
- Describe the impact
 - For you personally
 - For the **Asian** partners
 - For the Austrian Partners
 - For the scientific community
 - For the general public





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