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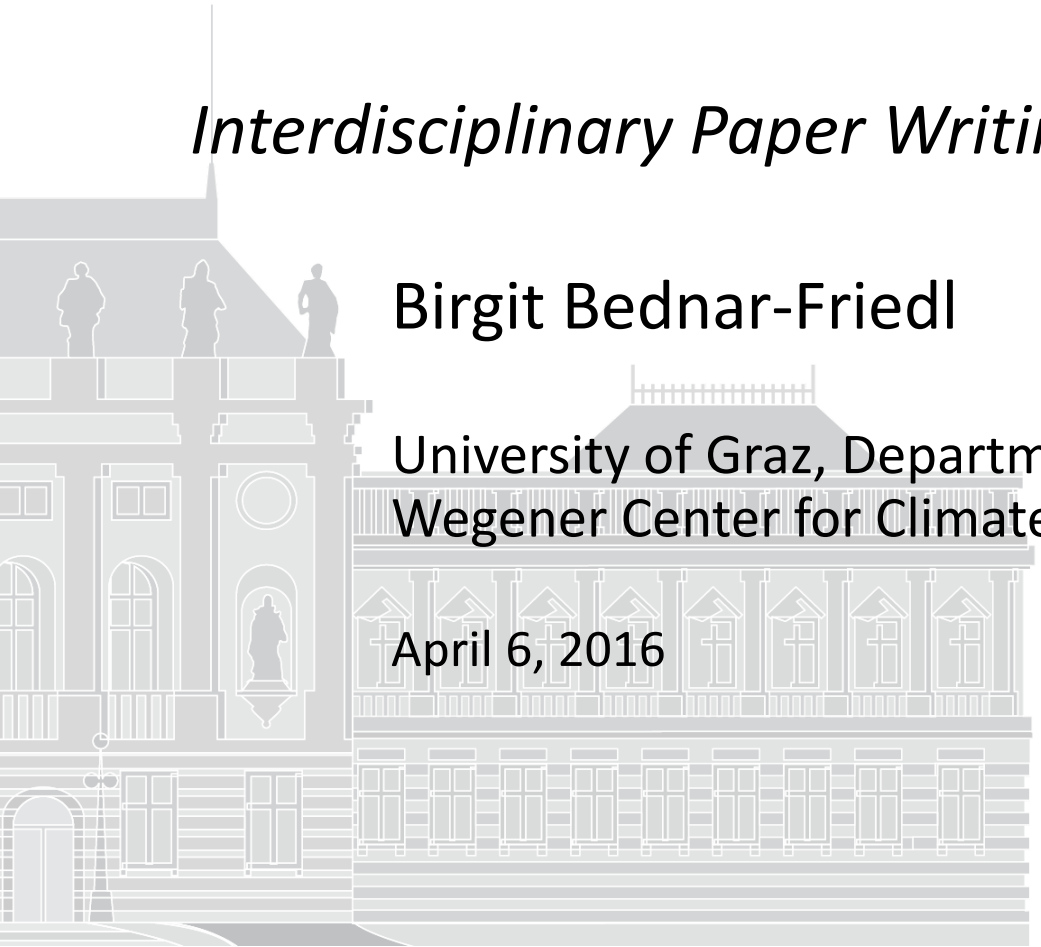

Interdisciplinary Paper Writing

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What is interdisciplinary research?

Interdisciplinary research is any study or group of studies undertaken by scholars from two or more distinct scientific disciplines.

The research is based upon a conceptual model that

- *links or integrates theoretical frameworks from those disciplines,*
- *uses study design and methodology that is not limited to any one field,*
- *and requires the use of perspectives and skills of the involved disciplines throughout multiple phases of the research process.*

Aboela et al. (2007, 341)

What is interdisciplinary research?

- Degree of collaboration
  - **Communication of ideas**
  - Mutual integration of concepts, terminology, methodologies, data → **model sequence, i/o interfaces**
  - Joint organization of research → **model integration, feedback loops**
- Degree of communication and interaction
  - **Little exchange** because contributions stand side by side
  - **information shared** on specific research topic
  - **Discussion** on **methods**, implicit/explicit **assumptions**, **conceptual frameworks**

Source: Adapted from Aboela et al. (2007)

What is interdisciplinary research?

- Degree of sharing

  Even if interdisciplinary researchers share a research problem they may

  - remain loyal to their **disciplinary languages, methods, conceptual frameworks**
  - **learn each other's terminology**
  - develop and use a **common language**

Source: Adapted from Aboela et al. (2007)

Inter- & transdisciplinary research methods

- **Integrated assessment modeling:** unified assumptions, reconciliation of modeling approaches, data and results
- **Triangulation/experimentation:** using a plurality of theories and methodologies to increase validity; popular in empirical social research
- **Multiple evidence-based approach**: assessment of one topic in different disciplinary and/or cultural knowledge systems; contradictory evidence accepted
- **Scenario building**: envision and prepare for the unexpected consequences of current practices and trajectories; exploration of radically different futures, utopian futures; visualization

Adapted from Klenk and Meehan (2015)

Interdisciplinary writing

- Selecting a topic for a predefined project team:
  What is the joint research question?

- Or: Inviting co-authors for a predefined topic:
  Which competences are needed? Where can we find them?

- **Joint project is often a prerequiste**

Interdisciplinary writing

- **Selecting a journal: interdisciplinary climate journals**

Journal	Publisher	Impact points	start
Nature Climate Change	Nature	5.991	2011
Global Environmental Change	Elsevier	3.006	1990
Wiley Interdisciplinary Reviews: Climate Change	Wiley	2.169	2010
Climatic Change	Springer	2.116	1977
Climate of the Past	EGU	2.047	2005
Regional Environmental Change	Springer	1.107	2005
Climate Policy	Earthscan	1.04	2001
Weather, Climate, and Society	AMS	0.731	2009
Climate and Development	Taylor & Francis	0.687	2009
International Journal of Climate Change Strategies and Management	Emerald	0.388	2011

Source: SCOPUS, http://www.scopus.com/source/browse.uri?zone=TopNavBar&origin=searchbasic

Interdisciplinary writing

- **Different disciplinary conventions, practices, and expectations** regarding
  - Whether there is a **first** (or lead) **author** or not
  - Whether there is a **last** (or senior) **author** or not
  - First or senior author is **corresponding author**
  - Maximum acceptable number of coauthors
- Discuss co-authorship of publications early on in the research process
- Might be helpful to clarify publication strategy for project as a whole

Interdisciplinary writing

- Criteria for **authorship**:
  substantial intellectual contribution
  - Conception or design of the work
  - Acquisition, analysis, interpretation of data and results
  - Writing of draft and revisions
  - Agreement to be accountable for all aspects of the work

Interdisciplinary writing: success factors

- Previous joint research
- Manuscripts written in parallel by same authors
- Coordinator has interdisciplinary balanced view, flexible timing
- Flexibility of involving additional coauthors, master thesis etc.
- Senior researchers as part of the research team
- Sound vision of integration which is mutually shared
- Good timing facilitates exchange of results
- Efficient internal review before submission
- Efficient external review which needs to be open to interdisciplinarity

Pohl et al. (2015)

Example: The Cost of Inaction Project

Steininger, K., König, M., Bednar-Friedl, B., Kranzl, L., Prettenthaler, F. (ed.), (2015), *Economic Evaluation of Climate Change Impacts: Development of a Cross-Sectoral Framework and Results for Austria*. Springer, Berlin.

Contents lists available at ScienceDirect

Climate Services

journal homepage: www.elsevier.com/locate/cliser

Consistent economic cross-sectoral climate change impact scenario analysis: Method and application to Austria

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ABSTRACT

Climate change triggers manifold impacts at the national to local level, which in turn have various economy-wide implications (e.g. on welfare, employment, or tax revenues). In its response, society needs to prioritize which of these impacts to address and what share of resources to spend on each respective adaptation. A prerequisite to achieving that end is an economic impact analysis that is consistent across sectors and acknowledges intersectoral and economy-wide feedback effects. Traditional Integrated Assessment Models (IAMs) are usually operating at a level too aggregated for this end, while bottom-up impact models most often are not fully comprehensive, focusing on only a subset of climate sensitive sectors and/or a subset of climate change impact chains. Thus, we develop here an approach which applies climate and socio-economic scenario analysis, harmonized economic costing, and sector explicit bandwidth analysis in a coupled framework of eleven (bio)physical impact assessment models and a uniform multi-sectoral computable general equilibrium model. In applying this approach to the alpine country of Austria, we find that macroeconomic feedbacks can magnify sectoral climate damages up to fourfold, or that by mid-century costs of climate change clearly outweigh benefits, with net costs rising two- to fourfold above current damage cost levels. The resulting specific impact information – differentiated by climate and economic drivers – can support sector-specific adaptation as well as adaptive capacity building.

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