

Gender & Science

A Lecture Series

Abstract This lecture series offers an introduction to the relationship between gender and science, with a focus on the specific intersections with the sciences taught at ETH. It is designed to acquaint participants from all scientific backgrounds with the various ways in which gender perspectives matter for specific scientific disciplines, as well as for science in general.

There is agreement across academic disciplines today that gender influences and structures the production of knowledge and that scientific knowledge production in turn shapes gender notions. Even within “hard” sciences such as biology, physics, engineering, etc., gender is a significant factor in determining what counts as “objective” knowledge, who can know it, what kind of knowledge is produced, or how this knowledge is acquired and justified. Feminist research aims to reveal how dominant conceptions of science and knowledge practices disadvantage women*, and other subordinate groups, with the goal of reforming these practices. An important part of feminist critique is to show that such efforts substantially improve the overall quality of research.

In a series of guest lectures, scholars from different scientific disciplines provide accessible insights into the intersection between gender studies and the guest lecturers’ respective fields of research. The lecture series thus encourages learning from concrete examples rather than abstract theory. The goal is for participants to be able to compare different approaches used to speak about gender and other types of bias in scientific research and to eventually apply relevant concepts and methods to critically evaluate practices their own disciplines of study and research.

Dates 04.11 | 11.11 | 18.11 | 25.11.2025
Time 10:00 – 15:00/17:00 (ECT)
Venue RZ F 21
Zoom <https://ethz.zoom.us/meeting/register/gHfz3I4DSU2P-FS8Enfb8A>
Contact genderscience@ethz.ch

Main lecturers Dr. Elena Valdameri - elena.valdameri@gess.ethz.ch
 Dr. Kebene Wodajo - kebene.wodajo@gess.ethz.ch

Organizing Committee Sophie Bettex
 Fanny Tockner

Detailed Public Program

BLOCK 1 Gendered Pasts: Introduction to Gender Science

The Colonial Life of Pharmaceuticals: Re-Inventing the History of Colonialism, Southeast Asia and Global Health

Prof. Dr. Laurence Monnais

*Institute in Medical Humanities, CHUV (Centre Hospitalier Universitaire
Vaudois) - Faculty of Biology and Medicine, UNIL (Université de Lausanne)*

November 4th

14:00-15:30

Abstract

Writing the history of pharmaceuticals in Vietnam under French rule (1860-1954), is not just about writing a history “from below” that highlights the agency of subaltern patients through their use of “traditional medicines”, their self-medication practices or their vaccine hesitancy. It is about thinking the history (and the present?) of health differently: from the Global South and beyond the therapeutic and clinical framework imposed by biomedicine and its agents. My presentation will include a critical reflection on the nature and place of therapeutic pluralism and offer keys to writing the global history of health and the history of global health differently.

Readings:

Monnais, L. (2012). Colonised and neurasthenic: From the appropriation of a word to the reality of a malaise de civilisation in urban French Vietnam. *Health and History*, 14(1), 121-142. <https://doi.org/10.5401/healthhist.14.1.0121>

Monnais, L. (2021). The Reinvention of an Appropriate Tradition or the Colonial Birth of Vietnamese Medicine. *Osiris*, 36, 113-131. <https://doi.org/10.1086/713423>

The Impact of Sex- and Gender-Sensitive Approaches: On the Practice of Medicine

Prof. Dr. Sabine Oertelt-Prigione

*University of Bielefeld, Medical School OWL, Working Group on Sex- and
Gender-Sensitive Medicine; Radboud University, Professorship for Gender in
Primary and Transmural Care*

November 4th

15:45-17:15

(online)

Abstract

There is a growing recognition of the impact of sex and gender on health and disease. Sex and gender can influence disease development, symptoms, diagnostic accuracy, and therapeutic choices and success. But how do we operationalize sex and gender in medicine? And, what do we learn from analyzing sex and gender for our everyday clinical practice? This presentation will start from a methodological standpoint and illustrate how to measure sex and gender differences in medicine. We will then transition from the application of these analyses to their consequences for clinical practice. Using examples from cardiology, oncology, neurology and primary care, as

well as digital health, we will highlight how sex- and gender-sensitive medicine can lead to more precise, more holistic and more impactful healthcare.

Readings:

Tannenbaum, C., Ellis, R. P., Eyssel, F., Zou, J., & Schiebinger, L. (2019). Sex and gender analysis improves science and engineering. *Nature*, 575(7781), 137–146. <https://doi.org/10.1038/s41586-019-1657-6>

BLOCK 2 Gendered Environments: Psychology, Policy, & Law

Sex/Gender in the Brain and Diversity in Neuroscience: Critical Notes

Prof. Dr. Anelis Kaiser-Trujillo

University of Basel, Faculty of Humanities, Department of Gender Studies

November 11th

09:30-11:00

(in person only,
RZ F21)

Abstract

Brain research today attracts acute scientific and public interest. Publications explaining why women and men feel, think, act, or talk differently are increasingly encountered. This practice can turn into a controversial topic when human behaviour is directly linked to the structures and activities of the brain. In this talk, I aim to present and discuss how sex/gender is categorised, treated, measured and discovered in (f)MRI studies, i.e. in studies that look at how women and men differ in structure and function of the brain. Additionally, I will present how diversity has found its way into neuroscience and how AI-based methods, with their underlying emphasis on multiplicity, further highlight human diversity yet not solving old problems such as gender pay gap in STEM persists or poor number of women in STEM fields. Central to my research is a transdisciplinary background based in Neuroscience and Gender Studies. While in neuroscience gender is a hard variable, in gender studies gender is a social phenomenon, a result and a facet of human action and social structures – in short: a social construct. My aim is to bridge the divide between these two epistemologically different approaches.

Readings:

Picó-Pérez, M., Marco, E. A., Thurston, L. T., Ambrosi, V., Genon, S., Bryant, K. L., Martínez, A. B., Ciccia, L., & Kaiser Trujillo, A. (2024). Researchers' sex/gender identity influences how sex/gender question is investigated in neuroscience: an example from an OHBM meeting. *Brain structure & function*, 229(3), 741–758. <https://doi.org/10.1007/s00429-023-02750-8>

Kaiser, A. (2012). Re-conceptualizing “sex” and “gender” in the human brain. *Zeitschrift Für Psychologie*, 220(2), 130–136. <https://doi.org/10.1027/2151-2604/a000104>

A Chemical-Safe and Healthy Future for All: Why and How to Strengthen Gender Equality in Chemicals Management

Anna Holthaus

Project Lead – MSP Institute (Multi-Stakeholder Processes for Sustainable Development e.V)

November 11th

11:00-12:30

Abstract

Chemicals, waste, and pollution present a global challenge comparable to climate change and biodiversity loss. Each year, 9 million people die due to environmental pollution because they have been exposed to toxic substances in air, water and soil. Similar to the climate and biodiversity crises, the global pollution crisis is a growing problem that not only has different effects on different genders but also exacerbates gender inequalities. To promote a chemical-safe and sustainable future for all, gender experts and women's organizations are actively involved in international policy processes and multi-stakeholder initiatives. Anna Holthaus, Project Lead for Gender and Chemicals at the MSP Institute, will explore the intersections between gender and chemicals, highlight current international policy debates, and showcase efforts to advance gender-responsive chemicals management.

Readings:

Orellana, M. (2024). Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes (A/79/163). *United Nations General Assembly*.

<https://docs.un.org/en/A/79/163>

The Price of Prosperity: PFAS Pollution as a State-Facilitated Corporate Crime

Prof. Dr. Lieselot Bisschop

Erasmus School of Law (ESL), Erasmus University of Rotterdam

November 11th

14:00-15:30

(online)

Abstract

Based on a European example of the large DuPont de Nemours (now Chemours) industrial facility in Dordrecht, the Netherlands, we frame the history of PFAS (per- and polyfluoroalkyl substances) exposures as a crime. We discuss the various harms of PFAS pollution, building on the legal framework, measurement of emissions *and diverse and unequal* lived experiences of harm. We discuss how PFAS pollution emerged in part due to knowledge asymmetries, perpetuated by the close alignment of corporate and governmental interests, and the fragmentation of regulatory enforcement, both historic and contemporary. Understanding these dynamics of opportunity, motivation, and lack of informed oversight lies at the core of any crime, including state-facilitated corporate crimes occurring within the confines of permitted business activities.

Readings:

Bisschop, L., van Wingerde, K., Onencan, A., & Verbeek, S. (2025). State-corporate crime and the environment. In R. White (Ed.), *Elgar Encyclopedia of Environmental Crime* (pp. 277-283). Edward Elgar Publishing.
<https://doi.org/10.4337/9781803923833.00051>

Onencan, A. M., Bisschop, L., & Hendlin, Y. (2024). Experiences of living within PFAS-polluted environs: a systematic review. *Crime, Law and Social Change*, 82(4), 961-987. Advance online publication. <https://doi.org/10.1007/s10611-024-10173-7>

Li, X., Hou, M., Zhang, F., Ji, Z., Cai, Y., & Shi, Y. (2025). Per- and Polyfluoroalkyl Substances and Female Health Concern: Gender-based Accumulation Differences, Adverse Outcomes, and Mechanisms. *Environmental Science & Technology*, 59(3), 1469-1486. <https://doi.org/10.1021/acs.est.4c08701>

Digital Rights, Technology and Gender

Prof. Dr. Mariana Valente

University of St. Gallen

November 11th

15:30-17:00

Abstract

Digital technologies have opened up new avenues for expression and diversification of points of view, including gender equality. At the same time, it has enhanced existing forms of gender-based violence like stalking and allowed new ones. What is particular about online gender-based violence, what are its effects, and what is the discussion at the legal, corporate, and design levels?

Readings:

Semезin, S., & Bainotti, L. (2020). The Use of Telegram for Non-Consensual Dissemination of Intimate Images: Gendered Affordances and the Construction of

Masculinites. *Social Media + Society*, 6(4), 205630510984453.

<https://doi.org/10.1177/2056305120984453>

Valente, M. (2023). Online Gender-Based Violence in Brazil: New Data Insights. *Centre for International Governance Innovation*.

Further resources:

- The InternetLab of which Mariana Valente is the associate director: <https://internetlab.org.br/en/news/equal-treatment-by-platforms-new-research-by-internetlab-addresses-differences-in-the-treatment-of-social-media-users/>
- The European Institute of Gender Equality - Cyber Violence against Women: https://eige.europa.eu/gender-based-violence/cyber-violence-against-women?language_content_entity=en

BLOCK 3 Gendered Spaces and Places: Math & Architecture

Math as a Genderless Space, and as a Gender-Making Tool

Dr. Franci Mangraviti

ETH Zurich, Walter Benjamin Fellowship

November 18th

09:30-11:00

Abstract

A widespread image of mathematics is that of a realm removed from worldly concerns, where everything has a clear, determined, and objective answer. This has often left mathematics in a weird relationship with feminist critiques of "views from nowhere", disembodied subjectivities, and dualistic thinking: on one hand, mathematics seems to be the most obvious target of such critiques, while on the other, it is the most resistant to feminist intervention, insofar as its features under attack are so often understood to be part of its very essence. Furthermore, mathematics does serve for many the function of a safe and empowering space where one's gender, together with all that is messy and confusing about the "real" world, can be forgotten. In the first half of this lecture, I will flesh out this conflict; in the second half, I will discuss attempts to navigate the conflict, with a particular attention to the power of mathematics to create new (gender) worlds.

Readings:

Burton, L. (1995). Moving towards a feminist epistemology of mathematics. *Educational Studies in Mathematics*, 28(3), 275–291.

<https://doi.org/10.1007/BF01274177>

Hottinger, S. N. (2016). The Discursive Construction of Gendered Subjectivity in Mathematics. In *Inventing the Mathematician: Gender, Race, and Our Cultural Understanding of Mathematics* (pp. 15–48). State University of New York Press.

<http://www.jstor.org/stable/jj.18255257.6>

Uckelman, S. (forthcoming). Logic as Liberation, or, Logic, Feminism and Being a Feminist in Logic. In: *The Logical Handbook 2023*. College Publications.

Physical Space Design and Identity Formation

Honorata Grzesikowska

Urban Masterplanner, Architect and Researcher, Equity & Social Value Spatial Designer, Founder Urbanitarian, co-founder Architektoniczki

November 18th

Abstract

11:00-12:30

Historically, architecture and urban planning have adhered to a 'one-size-fits-all' approach, neglecting the diverse needs of women, children, the elderly, and people of all abilities. This has resulted in urban environments that often fail to meet their needs and increase their vulnerability. Gender issues, coupled with other social inequalities, are often perpetuated by these spaces. In today's context, where more women head households and participate in the formal economy, cities must become inclusive and supportive environments for all. Efforts to promote inclusivity in urban design and architecture often fall short, focusing narrowly on specific issues such as physical disability without considering gender, age, or intersectionality. Addressing these challenges requires integrating gender perspectives into city governance and urban design to mitigate inequalities. This lecture explores methodologies for creating gender-inclusive spaces, emphasizing the concept of "gender-equal space" and envisioning an equitable city.

Key learning objectives include understanding gender-sensitive architecture, applying spatial equity approaches, leveraging data-driven processes to assess inclusivity, and developing critical design thinking for heterogeneous urban contexts. Case studies of successful gender-sensitive design projects, such as schoolyards, highlight the significance of unstructured public spaces in shaping children's social identities. Participatory processes in schoolyard design revealed how physical layouts influence the spatial behavior and social dynamics of children. Active, dominant children often occupy central spaces, relegating others to the peripheries, reinforcing social hierarchies. These insights underscore the need for comprehensive, gender-sensitive design to foster equality and prevent stereotype reinforcement. The project's findings advocate for mobility knowledge, democratized sports, and the long-term impact of childhood spatial experiences on adult engagement in public spaces and society.

Readings:

Calderón-Angelich, A., Anguelovski, I., Connolly, J. J. T., & Baró, F. (2023). Greening plans as (re)presentation of the city: Toward an inclusive and gender-sensitive approach to urban greenspaces. *Urban Forestry & Urban Greening*, 86, 127984.

<https://doi.org/10.1016/j.ufug.2023.127984>

Cities Alliance (2022): *Women-Friendly Urban Planning - A Toolkit from Cities of the Global South*. Cities Alliance, Brussels.

https://www.citiesalliance.org/sites/default/files/2022-04/Cities%20Alliance_Toolkit_for_women-friedly_urban_planning_2022.pdf

Kozma, G., Radics, Z., & Teperics, K. (2022). The Role of Sports Facilities in the Regeneration of Green Areas of Cities in Historial View: The Case Study of Great

Forest Stadium in Debrecen, Hungary. *Buildings*, 12(6), Article 6.

<https://doi.org/10.3390/buildings12060714>

Thomas, J. M. (2022). Racism and US Urban Planning. In *Infrastructure, Wellbeing and the Measurement of Happiness*. Routledge.

Designing Difference: How Products Shape and Reflect Gender Norms

Larissa Holaschke

Design Researcher, Zurich University of the Arts / Deputy Head of Equal Opportunities & Diversity Office, ZHdK

November 18th

Abstract

14:45-15:30

From shampoo bottles to power tools, from snack packaging to children's toys: gender is subtly embedded in countless design decisions. The lecture explores how everyday products reflect and reinforce normative ideas about gender – through colour, form, function and branding. We will look at the historical roots of gendered design and its commercial logic, and discuss its societal consequences. By critically examining everyday objects, we ask: What does our designed environment communicate about identity, about who belongs, and who doesn't? The lecture concludes with impulses for more inclusive and reflective approaches, showing how design can contribute to rethinking gender norms and opening up new possibilities for everyone.

Readings:

Criado-Perez, C. (2019). *Invisible women: Data bias in a world designed for men*. Abrams Press.

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BLOCK 4 Gendered Tech: Engineering & Computer Science

Sustainable Aviation: What Does It Mean, and for Whom?

Dr. Sandra Buchmüller

Dresden University of Technology (TUD)

November 25th

Abstract

09:30-11:00
(online)

A case study of feminist research in engineering sciences
In my talk, I present a project that explores the demands of passengers and airport residents regarding sustainable aviation, approached from a feminist research perspective. I use this project as a case study to highlight three key aspects:

1. What feminist research entails;
2. How feminist perspectives contribute to or reshape research in engineering contexts;
3. The interdisciplinary challenges that arise when feminist researchers collaborate with scholars in engineering and the natural sciences.

The project is part of the ongoing Cluster of Excellence *Sustainable and Energy-Efficient Aviation (SE²A)*- an interdisciplinary research network led by TU Braunschweig.

Readings:

Stilke, J., & Buchmüller, S. (2021). Users and non-users in engineering and feminist participatory research on sustainable aviation. *NOvation-Critical Studies of Innovation*, (3), 110-133. <https://doi.org/10.5380/nocsi.v0i3.91148>

Researchers' motivation: <https://www.tu-braunschweig.de/en/se2a/about-us/portrait-gallery/sandra-buchmueller>

Project: <https://www.tu-braunschweig.de/en/se2a>

Social Role Models and Gender Issues in Large Language Models

Prof. Dr. Mascha Kurpicz-Briki
Berner Fachhochschule, School of Engineering and Computer Science

November 25th

Abstract

11:00-12:30

Various research has shown that societal stereotypes and role models can be reflected in AI technologies. This can lead to bias in software applications that use these models, such as decision support systems. In the case of generative AI, these biases can also appear in generated content (such as texts or images), reproducing undesirable patterns. Large Language Models (LLMs), which are trained on massive amounts of text, learn implicit relationships from all this data.

Detecting and reducing such bias poses a challenge for several reasons. Bias can manifest in many ways, both directly and indirectly, affecting characteristics such as gender or ethnicity, and can be especially complex in intersectional contexts. This talk provides a brief look behind the scenes of LLMs and highlights the significance of social role models and gender issues for the use and development of this type of model.

Readings:

Kurpicz-Briki, M. (2023). Stereotypes in Language Models. In M. Kurpicz-Briki (Ed.), *More than a Chatbot: Language Models Demystified* (pp. 101–114). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-37690-0_6