



## Laura W. Dijkhuizen

Currently living in Utrecht, the Netherlands

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🌐 <https://lauradijkhuizen.com>

Passionate about plant biology and making complex science accessible. I bring a strong background in plant biology, bioinformatics, and team coordination. Skilled communicator thriving in autonomous, mission-driven teams.

## Professional Attributes

- Clear **communicator** across technical & non-technical audiences
- Skilled **educator & mentor** to 500+ young professionals
- Experienced **chair** & consensus builder representing ~2000 PhDs
- **Autonomous multitasker** with project leadership
- **Genomics data scientist** (R, Python, Bash/Linux)
- **HPC & workflow specialist**: Docker, GitHub, reproducible pipelines
- **Domain specialist** on plant symbiosis biology, genomics & environmental research

## Employment & Education

**2022 – now.** **Lecturer & Trainer** in programming, bioinformatics & data science for PhD candidates & postdocs (GitHub)  
*Theoretical Biology & Bioinformatics Group at Utrecht University*

**2017 – 2022.** **PhD Researcher and teacher** I secured funding for my own PhD on the (meta)genomics of novel crop *Azolla* (GitHub)  
*Molecular Plant Physiology Group, Utrecht University.*

**2010 – 2017.** **MSc / BSc** Environmental Plant Biology  
*Utrecht University*

## Leadership & Project Management

**2023 – now.** Member, **Department Advisory Committee**, Biology Dept., Utrecht University. – feedback on strategic priorities & governance.

**2021.** Member, TU Delft **Research Assessment Committee** (Chemical Engineering & Biotechnology). – “Visitatie commissie” in Dutch (Report).

**2020 – 2021.** Member, **Faculty Open Science Implementation Team & UU Open Science Platform**. – driving reproducibility policies and innovations (Interview).

**2019 – 2021.** Member, **Curriculum Committee**, M.Sc. Bioinformatics & Biocomplexity. – Design a brand new Masters. (link)

**2017 – 2021.** **PhD Council Chair** and member **Board of Studies** (GS-LS) — representing ~2000 PhDs. – negotiated new PhD graduation guidelines with three faculties.

**2017 – 2021.** **PhD Council Representative**, Institute of Environmental Biology.

## Key Achievements

Trained 500+ PhD candidates & postdocs in my self made bioinformatics curriculum for professionals. (GitHub)

Skilled builder of reproducible pipelines like Nanopore variant calling (link), pangenomics (link), phylogeny (link), and metagenome analysis (link). – Turning big data, into insight.

Chaired a council representing ~2000 PhD candidates, leading organisational change for new graduation guidelines adopted by three faculties.

Experienced stakeholder manager and communicator serving on 5 more strategic committees (See Project Management section).

Experienced public speaker from elementary schools to scientific conferences and of course classroom (Outreach page).

Build and maintained a bioinformatics Linux server (link) enabling experimentalist colleagues to use my infrastructure with ease.

Worked with a wide variety of data. From PacBio long reads to microRNA-seq and from optical mapping to handwritten notes.

## Teaching & Training

**Lecturer & Trainer (2022–now):** Design and deliver modular workshops in R, Python & Bash for PhD candidates and postdocs, tailoring content to individual research goals and team projects (GitHub).

**Course Coordinator (2020–2021):** Led the “Introduction to Bioinformatics” Master’s course – integrating 8+ domain experts from across Utrecht Science Park into a unified, hands-on curriculum (GitHub).

**Thesis Supervisor (2017–2022):** Mentored 10+ MSc/BSc students on computational biology and plant physiology projects guiding experimental design, data pipelines, and results communication.

**Workshop Facilitator & TA (2017–2020):** Supported courses in Systems Biology, Plant Physiology, Molecular Genetics Techniques, and specialized bioinformatics bootcamps like Git.

## Outreach & Communication

**Television:** Local TV interview on *Azolla* ferns (2017; Dutch) – Watch. And an interview for “De Kennis van Nu” popular science program (2018; Dutch) – Watch.

**Radio:** BNR national radio feature on *Azolla* (2017; Dutch) – Link

**Print:** Feature in AD newspaper (2018; Dutch) – Read

**Lectures & Events:** Frequent invited speaker and demonstrator at public science events, including gene editing seminars, hands-on plant biology demos, and outreach talks for schools (2018–2022).

## Selected Scientific Publications

### Genomics & Bioinformatics

- **Genome Engineering by RNA-Guided Transposition for *Anabaena* sp.** ACS Synthetic Biology (2024). DOI
- **Is there foul play in the leaf pocket?** New Phytologist (2018). DOI
- ***Azolla* ferns testify: seed plants and ferns share a common ancestor for LAR** New Phytologist (2021). DOI

### Workflow & Reproducible Research

- **LAR phylogeny for Gungor et al. 2020: The complete analysis and dataset** Dataset (2020-07-24). DOI
- **Chapter 3: Hidden treasures: public sequencing data of symbiotic *Azolla* ferns harbours a genus-wide metagenome** Thesis chapter phd repo link

### Plant Physiology & Ecology

- **The crane fly glycosylated triketide  $\delta$ -lactone cornicinine elicits akinete differentiation of the cyanobiont in aquatic *Azolla* fern symbioses** Plant, Cell & Environment (2024). DOI
- **Control of the *Azolla* symbiosis sexual reproduction: ferns to shed light on the origin of floral regulation?** Preprint (2020). DOI

## Interests & Volunteering

**Volunteer Facilitator** of monthly discussion groups and retreats for youth on gender fostering inclusive dialogue

**Sports:** Rock climbing, cycling & sailing



**Event Organizer:** “Bèta-dag” for 150+ high-school students and open science workshops

Advanced nature **photographer:** cover image featured on *Nature Plants*

## Technical Proficiencies

 R	● ● ● ● ●	 Snakemake	● ● ● ● ●
 Python	● ● ● ● ○	 Conda	● ● ● ● ●
 Bash	● ● ● ● ●	 SQL	● ● ○ ○ ○
 HPC	● ● ● ● ●	 Machine learning	● ● ● ● ○
 Docker	● ● ● ○ ○	 Visualization	● ● ● ● ●
 Git	● ● ● ● ○	 Code Notebooks	● ● ● ● ●

## Languages

 English	● ● ● ● ●
 Dutch	● ● ● ● ●

## Scientific publications & PhD chapters

All publications are listed at [lauradijkhuizen.com/science](https://lauradijkhuizen.com/science) and  ORCID: 0000-0002-4628-7671

- **Güngör, E.; Savary, J.; Adema, K.; Dijkhuizen, L.W.; et al.** (2024-07) "The crane fly glycosylated triketide  $\delta$ -lactone cornicinine elicits akinete differentiation. . .," *Plant, Cell & Environment*. DOI: 10.1111/pce.14907
- **Arévalo, S.; Pérez Rico, D.; Abarca, D.; Dijkhuizen, L.W.; et al.** (2024-03-15) "Genome Engineering by RNA-Guided Transposition for *Anabaena* sp. PCC 7120," *ACS Synthetic Biology*. DOI: 10.1021/acssynbio.3c00583
- **Arévalo, S.; Pérez Rico, D.; Abarca, D.; Dijkhuizen, L.W.; et al.** (2022-09-19) "Genome engineering by RNA-guided transposition for *Anabaena* PCC 7120," Preprint. DOI: 10.1101/2022.09.18.508393
- **Güngör, E.; Brouwer, P.; Dijkhuizen, L.W.; et al.** (2021-01) "Azolla ferns testify: seed plants and ferns share a common ancestor. . .," *New Phytologist*. DOI: 10.1111/nph.16896
- **Dijkhuizen, L.W.; Güngör, E.; et al.** (2020-07-24) "LAR phylogeny for Gungor et al. 2020: The complete analysis and dataset," Dataset. DOI: 10.5281/zenodo.3959057

### PhD Thesis chapters

- **Chapter 1: A hitch-hiker's guide to Azolla symbiosis genomics**  
A broad, less formal introduction to Azolla symbiosis genomics, aimed at engaging a wider scientific audience and providing context for the thesis.  
*Laura W. Dijkhuizen*
- **Chapter 2: Foul play in the leaf pocket? The metagenome of floating fern Azolla reveals endophytes that do not fix N<sub>2</sub> but may denitrify**  
Discovery and analysis of prokaryotic DNA in Azolla, identification of associated bacterial genomes, and investigation of their metabolic pathways and ecological roles.  
*Laura W. Dijkhuizen, et al.* DOI
- **Chapter 3: Hidden treasures: public sequencing data of symbiotic Azolla ferns harbours a genus-wide metagenome**  
Development of a workflow to enrich and study genomes of bacteria associated with all sequenced Azolla species, revealing systematic presence and vertical transfer of key symbionts.  
*Laura W. Dijkhuizen, et al.*
- **Appendix B: Metagenomics practical**  
An educational practical designed to teach metagenomics principles and techniques to Life Sciences students, using Bash and Jupyter notebooks for hands-on learning.  
*Laura W. Dijkhuizen* GitHub
- **Chapter 4: Forever together: One *Nostoc azollae* is symbiont to all Azolla species**  
Comparative genomics of the main Azolla symbiont, *N. azollae*, showing near-identical genomes across hosts, high pseudogene content, and phylogenomic placement within Nostocales.  
*Laura W. Dijkhuizen, et al.*
- **Chapter 5: It takes two: Far-Red light induces the Azolla-Nostoc symbiosis sexual reproduction**  
Investigation of sexual reproduction and symbiont transmission in Azolla/*N. azollae*, including environmental triggers, gene regulation, and evolutionary implications for crop application.  
*Laura W. Dijkhuizen, Tabatabaei, B.E.S., Brouwer, P., et al.* DOI
- **Chapter 6: One, Two, Tree! A workflow for creating state-of-the-art phylogenies designed for reproducibility with JuPyter, conda and git**  
Description of a reproducible workflow for phylogenetic tree inference in land plants, using open-source tools and providing resources for semi-automatic tree annotation.  
*Laura W. Dijkhuizen*