Michael Gruenstaeudl (Grünstäudl), PhD

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Education and Professional Positions

Education

Habilitation in Bioinformatics and Botany	Freie Universität Berlin, Germany	2023
Habilitation thesis: "Development and application of bioinformatic tools toward process automation in plant phylogenetics"		
Ph.D. in Plant Biology	University of Texas at Austin, USA	2013
M.Sc. in Plant Biology	University of Vienna, Austria	2007

Professional Positions

Assistant Professor (Tenure-Track)	Fort Hays State University, USA	2023–ongoing
Dept. Biological Sciences		
Postdoctoral Researcher	Freie Universität Berlin, Germany	2015–2022
Dept. Biology, Chemistry, Pharmacy		
Postdoctoral Researcher	Ohio State University, USA	2014–2015
Dept. Evolution, Ecology & Organismal Biology		

Research

Grant Funding

NSF-2417083	National Science Foundation – IUSE: EDU	$ 385,971
Co-PI	Grant#: 2417083, Duration: 2024–ongoing	
NIH-1R01LM014506	National Institutes of Health – National Library of Medicine	$ 239,206
Single PI	Grant#: 1R01LM014506, Duration: 2024–ongoing	
DFG-418670221	Deutsche Forschungsgemeinschaft – Sachbeihilfe	€ 69,360
Single PI	Grant#: 418670221, Duration: 2018–2022	
KINBRE-GR00848	Kansas IDeA Network of Biomedical Research Excellence	$ 33,210
Single PI	Grant#: P20GM103418/GR00848, Duration: 2025–ongoing	
UT-F816842	University of Texas at Austin Graduate Research Fellowship	$ 26,772
Single PI	Grant#: F816842, Duration: 2011–2012	
KINBRE-GR509061	Kansas IDeA Network of Biomedical Research Excellence	$ 24,765
Single PI	Grant#: P20GM103418/GR509061, Duration: 2023–2024	
FHSU-GR00807	Kansas legislature via the FHSU Water Office	$ 24,059

Single PI	Grant#: GR00807, Duration: 2025–ongoing	
FU-21224600	Freie Universität Berlin Forschungskommission	€ 11,470
Single PI	Grant#: 21224600, Duration: 2016–2018	

PUBLICATIONS

Graduate and undergraduate student mentees are underlined

[27] N Jenke, Smith, GM, Magar Thapa, B, and **M Gruenstaeudl**. "Variation of and associations with the depth and evenness of sequencing coverage in archived plastid genomes". In: *Scientific Reports* 15 (2025). https://doi.org/10.1038/s41598-025-11568-9, p. 26294.

[26] JA Roestel, JH Wiersema, RK Jansen, T Borsch, and **M Gruenstaeudl**. "On the importance of sequence alignment inspections in plastid phylogenomics – an example from revisiting the relationships of the water-lilies". In: *Cladistics* 40 (2024). https://doi.org/10.1111/cla.12584, pp. 469–495.

[25] E Giorgashvili, K Reichel, C Caswara, V Kerimov, T Borsch, and **M Gruenstaeudl**. "Software choice and sequencing coverage can impact plastid genome assembly – A case study in the narrow endemic *Calligonum bakuense*". In: *Frontiers in Plant Science* 13 (2022). https://doi.org/10.3389/fpls.2022.779830, p. 779830.

[24] B Escobari, T Borsch, TS Quedensley, and **M Gruenstaeudl**. "Plastid phylogenomics of the Gynoxoid group (Senecioneae, Asteraceae) highlights the importance of motif-based sequence alignment amid low genetic distances". In: *American Journal of Botany* 108 (2021). https://doi.org/10.1002/ajb2.1775, pp. 2235–2256.

[23] T Mehl and **M Gruenstaeudl**. "airpg: Automatically accessing the inverted repeats of archived plastid genomes". In: *BMC Bioinformatics* 22 (2021). https://doi.org/10.1186/s12859-021-04309-y, p. 413.

[22] I Duran, A Marrero, F Msanda, C Harrouni, **M Gruenstaeudl**, J Patino, J Caujape-Castells, and C Garcia-Verdugo. "Iconic, threatened, but largely unknown: Biogeography of the Macaronesian dragon trees (*Dracaena* spp.) as inferred from plastid DNA markers". In: *Taxon* 69 (2020). doi: https://doi.org/10.1002/tax.12215, pp. 217–233.

[21] **M Gruenstaeudl**. "annonex2embl: automatic preparation of annotated DNA sequences for bulk submissions to ENA". In: *Bioinformatics* 21 (2020). doi: https://doi.org/10.1093/bioinformatics/btaa209, p. 207.

[20] **M Gruenstaeudl** and N Jenke. "PACVr: Plastome Assembly Coverage Visualization in R". In: *BMC Bioinformatics* 36 (2020). doi: https://doi.org/10.1186/s12859-020-3475-0, pp. 3841–3848.

[19] A Szukala, N Korotkova, **M Gruenstaeudl**, AN Sennikov, GA Lazkov, SA Litvinskaya, SA Gabrielian, T Borsch, and E von Raab-Straube. "Phylogeny of the Eurasian genus *Jurinea* (Asteraceae: Cardueae): Support for a monophyletic genus concept and a first hypothesis on overall species relationships". In: *Taxon* 68 (2019). doi: https://doi.org/10.1002/tax.12027, pp. 112–131.

[18] **M Gruenstaeudl**. "Why the monophyly of Nymphaeaceae currently remains indeterminate: An assessment based on gene-wise plastid phylogenomics". In: *Plant Systematics and Evolution* 305 (2019). doi: https://doi.org/10.1007/s00606-019-01610-5, pp. 827–836.

[17] **M Gruenstaeudl** and Y Hartmaring. "EMBL2checklists: A Python package to facilitate the user-friendly submission of plant and fungal DNA barcoding sequences to ENA". In: *PLoS ONE* 14 (2019). doi: https://doi.org/10.1371/journal.pone.0210347, e0210347.

[16] V Di Vincenzo, **M Gruenstaeudl**, L Nauheimer, M Wondafrash, P Kamau, S Demissew, and T Borsch. "Evolutionary diversification of the African achyranthoid clade (Amaranthaceae) in the context of sterile flower evolution and epizoochory". In: *Annals of Botany* 122 (2018). doi: https://doi.org/10.1093/aob/mcy055, pp. 69–85.

[15] TS Quedensley, **M Gruenstaeudl**, and RK Jansen. "Phylogenetic relationships of the Mexican tussilaginoid genera (Asteraceae: Senecioneae)". In: *Journal of the Botanical Research Institute of Texas* 12 (2018), pp. 481–498. ISSN: 1934-5259.

[14] **M Gruenstaeudl**, N Gerschler, and T Borsch. "Bioinformatic workflows for generating complete plastid genome sequences - An example from *Cabomba* (Cabombaceae) in the context of the phylogenomic analysis of the water-lily clade". In: *Life* 8 (2018). doi: https://doi.org/10.3390/life8030025, p. 25.

[13] N Korotkova, G Parolly, A Khachatryan, L Ghulikyan, H Sargsyan, J Akopian, T Borsch, and **M Gruenstaeudl**. "Towards resolving the evolutionary history of Caucasian pears (*Pyrus*, Rosaceae) - Phylogenetic relationships, divergence times and leaf trait evolution". In: *Journal of Systematics and Evolution* 56 (2017). doi: https://doi.org/10.1111/jse.12276, pp. 35–47.

[12] E Maharramova, I Huseynova, S Kolbaia, **M Gruenstaeudl**, T Borsch, and LAH Muller. "Phylogeography and population genetics of the riparian relict tree *Pterocarya fraxinifolia* (Juglandaceae) in the South Caucasus". In: *Systematics and Biodiversity* 16 (2017). doi: https://doi.org/10.1080/14772000.2017.1333540, pp. 14–27.

[11] **M Gruenstaeudl**, BC Carstens, A Santos-Guerra, and RK Jansen. "Statistical hybrid detection and the inference of ancestral distribution areas in *Tolpis* (Asteraceae)". In: *Biological Journal of the Linnean Society* 121 (2017). doi: https://doi.org/10.1093/biolinnean/blw014, pp. 133–149.

[10] **M Gruenstaeudl**, L Nauheimer, and T Borsch. "Plastid genome structure and phylogenomics of Nymphaeales: Conserved gene order and new insights into relationships". In: *Plant Systematics and Evolution* 303 (2017). doi: https://doi.org/10.1007/s00606-017-1436-5, pp. 1251–1270.

[9] BC Carstens, **M Gruenstaeudl**, and NM Reid. "Community trees: Identifying codiversification in the Paramo dipteran community". In: *Evolution* 70 (2016). doi: https://doi.org/10.1111/evo.12916, pp. 1080–1093.

[8] **M Gruenstaeudl**. "WARACS: Wrappers to automate the reconstruction of ancestral character states". In: *Applications in Plant Sciences* 4 (2016). doi: https://doi.org/10.3732/apps.1500120, p. 1500120.

[7] **M Gruenstaeudl**, NM Reid, GL Wheeler, and BC Carstens. "Posterior predictive checks of coalescent models: P2C2M, an R package". In: *Molecular Ecology Resources* 16 (2015). doi: https://doi.org/10.1111/1755-0998.12435, pp. 193–205.

[6] **M Gruenstaeudl**, CV Hawkes, A Santos-Guerra, and RK Jansen. "Preliminary investigations of correlated diversification between plants and their associated arbuscular mycorrhizal fungi in Macaronesia". In: *Proceedings of the Amurga International Conferences on Island Biodiversity 2011*. Ed. by J Caujape-Castells, G Nieto-Feliner, and JM Fernandez-Palacios. Las Palmas, Spain: Fundacion Canaria Amurga Maspalomas, 2013, pp. 146–153. ISBN: 978-84-616-7394-0.

[5] **M Gruenstaeudl**, A Santos-Guerra, CV Hawkes, and RK Jansen. "Molecular survey of arbuscular mycorrhizal fungi associated with *Tolpis* on three Canarian islands (Asteraceae)". In: *Vieraea* 41 (2013). doi: http://dx.doi.org/10.31939/vieraea.2013.41.17, pp. 233–252. ISSN: 0210-945X.

[4] **M Gruenstaeudl**, A Santos-Guerra, and RK Jansen. "Phylogenetic analyses of *Tolpis* Adans. (Asteraceae) reveal patterns of adaptive radiation, multiple colonization and interspecific hybridization". In: *Cladistics* 29 (2013). doi: https://doi.org/10.1111/cla.12005, pp. 416–434.

[3] V Funk, A Anderberg, B Baldwin, R Bayer, J Bonifacino, I Breitwieser, L Brouillet, R Carbajal, R Chan, A Coutinho, D Crawford, J Crisci, M Dillon, S Freire, M Galbany Casals, N Garcia-Jacas, B Gemeinholzer, **M Gruenstaeudl**, HW Lack, and L Watson. "Compositae metatrees: the next generation". In: *Systematics, Evolution and Biogeography of the Compositae*. Ed. by VA Funk, A Susanna, TF Stuessy, and R Bayer. Vienna, Austria: International Association For Plant Taxonomy (IAPT), 2009, pp. 747–777. ISBN: 978-39-501-7543-1.

[2] TF Stuessy, E Urtubey, and **M Gruenstaeudl**. "Barnadesieae (Barnadesioideae)". In: *Systematics, Evolution and Biogeography of the Compositae*. Ed. by V.A. Funk, A. Susanna, T.F. Stuessy, and R. Bayer. Vienna, Austria: IAPT, 2009, pp. 215–228. ISBN: 978-39-501-7543-1.

[1] **M Gruenstaeudl**, E Urtubey, RK Jansen, R Samuel, MHJ Barfuss, and TF Stuessy. "Phylogeny of Barnadesioideae (Asteraceae) inferred from DNA sequence data and morphology". In: *Molecular Phylogenetics and Evolution* 51 (2009). doi: https://doi.org/10.1016/j.ympev.2009.01.023, pp. 572–587.

CONFERENCE PRESENTATIONS

2026 **Invited Seminar**
Universität Wien, Austria

2025 **Invited Seminar**
Universität Regensburg, Germany

2025 **Contributed Talk**
OLC Accelerate 2025: Orlando, Florida, USA

2024 **Invited Seminar**
Wichita State University, USA

2024 **Contributed Talk**
20th Int'l Botanical Congress: Madrid, Spain

2024 **Contributed Talk**
Austrian Bioinform. Workshop 2024: Graz, Austria

2021 **Contributed Talk (online)**
Deutsche Bot. Gesellsch.: Oldenburg, Germany

2021 **Contributed Talk (online)**
19. Österreich. Botanik-Tagung: Krems, Austria

2021 **Workshop Organizer (online)**
Botanical Soc. of America Conf.: Connecticut, USA

2021 **Contributed Talk (online)**
Botanical Soc. of America Conf.: Connecticut, USA

2020 **Contributed Talk (online)**
Barcode of Life Initiative: Vienna, Austria

2019 **Workshop Organizer**
Gesellsch. für Biol. Systematik: Munich, Germany

2019 **Contributed Talk**
Gesellsch. für Biol. Systematik: Munich, Germany

2018 **Contributed Talk**
Deutsche Bot. Gesellsch.: Klagenfurt, Austria

2018 **Workshop Organizer**
Gesellsch. für Biol. Systematik: Vienna, Austria

2018 **Contributed Talk**
Gesellsch. für Biol. Systematik: Vienna, Austria

2017 **Contributed Talk**
Genomics in Biodiversity Res.: Berlin, Germany

2016 **Contributed Talk**
Dahlem Center of Plant Sciences: Berlin, Germany

2015 **Contributed Talk**
VISCEA Ecology & Evolution Conf.: Vienna, Austria

2015 **Invited Seminar**
Universität Leipzig, Germany

2014 **Contributed Talk**
Society for the Study of Evolution Conf., USA

2011 **Invited Seminar**
University of Wageningen, The Netherlands

2010 **Contributed Talk**
Flora Macaronesia Int'l Symp.: Azores, Portugal

2010 **Contributed Talk**
9th Int'l Mycological Conf.: Edinburgh, UK

2009 **Contributed Talk**
Botanical Soc. of America Conf.: Utah, USA

2008 **Contributed Talk**
Botany 2008 Conf.: Vancouver, Canada

2007 **Contributed Talk**
Botany & Plant Biology 2007 Conf.: Chicago, USA

Teaching

LIST OF UNIVERSITY COURSES TAUGHT

G graduate-level course

Assistant Professor at Fort Hays State Univ.

Principles of Biology (BIOL180, 3 credits) – Lectures	Sole instructor	**4 semesters** Spring 2025, Fall 2024, Fall 2023, Spring 2023
Genetics (BIOL325, 3 credits) – Lectures	Sole instructor	**4 semesters** Spring 2023, Spring 2024, Fall 2024, Fall 2025
Genetics (BIOL325, 1 credit) – Labs	Sole instructor	**4 semesters** Spring 2023, Spring 2024, Fall 2024, Fall 2025
Topics in Biology: Bioinformatics (BIOL607/G, 3 credits) G	Sole instructor	**2 semesters** Fall 2023, Fall 2025
Botany (BIOL250, 3 credits) – Lectures	Sole instructor	**2 semesters** Fall 2023, Spring 2025
Botany (BIOL250L, 1 credit) – Labs	Sole instructor	**2 semesters** Fall 2023, Spring 2025
Plant Anatomy (BIOL330, 3 credits) – Lectures	Sole instructor	**1 semester** Fall 2025
Plant Anatomy (BIOL330L, 1 credit) – Labs	Sole instructor	**1 semester** Fall 2025
Topics in Biology: Molecular Biology, 4 credits (BIOL607/G) G	Sole instructor	**1 semester** Fall 2023
Readings in Biology: The Impact of AI on Biology and Medicine (BIOL482/BIOL882, 2 credits) G	Sole instructor	**1 semester** Fall 2023

Lecturer at the Freie Universität Berlin

Genetik & Genomforschung (LVNr. 23771a) – Vorlesung Genetics & Genomics – Lectures	Co-instructor	**4 semesters** Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online)
Genetik & Genomforschung (LVNr. 23771b) – Praktikum Genetics & Genomics – Labs	Co-instructor	**4 semesters** Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online)

Einführung in Botanik & Biodiversität (LVNr. 23106) – Vorlesung Introduction to Botany & Biodiversity – Lectures	Co-instructor	**5 semesters** Fall 2017, Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online)
Einführung in Botanik & Biodiversität (LVNr. 23108a-e) – Praktikum Introduction to Botany & Biodiversity – Labs	Co-instructor	**6 semesters** Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online)
Botanik & Mikrobiol. für das Fach Biochemie (LVNr. 23700) – Vorlesung Botany & Microbiol. for Biochemists – Lectures	Co-instructor	**5 semesters** Fall 2017, Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online)
Allg. Botanik & Pflanzenphys. für Veterinärmed. (LVNr. 23760b-c) – Vorlesung Botany & Plant Phys. for Veterinary Sci. – Lectures	Co-instructor	**5 semesters** Fall 2017, Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online)
Prakt. Vertiefung Fachwissenschaft Biologie–Evolution (LVNr. 23653) – Seminar Topics in Biology: Evolution – Seminar G	Co-instructor	**5 semesters** Spring 2017, Spring 2019, Spring 2020 (online), Spring 2021 (online)
Prakt. Vertiefung Fachwissenschaft Biologie–Evolution (LVNr. 23654a-b) – Praktikum Topics in Biology: Evolution – Labs G	Co-instructor	**5 semesters** Spring 2017, Spring 2019, Spring 2020 (online), Spring 2021 (online)
Forschungspraktikum Bioinformatik (LVNr. 19400432) – Praktikum Research in Bioinformatics – Labs	Co-instructor	**1 semester** Spring 2019
Current Topics in Plant Systematics & Evolution (LVNr. 23815) – Seminar G	Co-instructor	**1 semester** Fall 2018
Evolution & Biodiversität–Botanik (LVNr. 23303a-e) – Vorlesung Evolution & Biodiversity–Botany – Lectures G	Co-instructor	**1 semester** Spring 2015

GRADUATE STUDENT SUPERVISION

David Esteban Bohorquez	Master of Science	Fort Hays State Univ.	Primary/Thesis Adv.	2025–ongoing
Thanina Hamitouche	Master of Science	Fort Hays State Univ.	Primary/Thesis Adv.	2025–ongoing
Buddha Thapa Magar	Master of Science	Fort Hays State Univ.	Primary/Thesis Adv.	2024–ongoing
Louisa Acquah	Master of Science	Fort Hays State Univ.	Primary/Thesis Adv.	2023–ongoing
Nils Jenke	Master of Science	Freie Univ. Berlin	Primary/Thesis Adv.	2020–2021
Yannick Hartmaring	Master of Science	Freie Univ. Berlin	Primary/Thesis Adv.	2020–2021
Eka Giorgashvili	Master of Science	Freie Univ. Berlin	Primary/Thesis Adv.	2019–2020

Jessica Röstel	Master of Science	Freie Univ. Berlin	Primary/Thesis Adv.	2019–2020
Griffin Davis	Master of Science	Fort Hays State Univ.	Committee Member	2024–ongoing
Gabriella Rueschhoff	Master of Science	Fort Hays State Univ.	Committee Member	2024–ongoing
Alfred Appiah	Master of Science	Fort Hays State Univ.	Committee Member	2023–2025
Jacob Alexander	Master of Science	Fort Hays State Univ.	Committee Member	2023–2025
Isaac Odoi	Master of Science	Fort Hays State Univ.	Committee Member	2023–2024

UNDERGRADUATE STUDENT SUPERVISION

Note: In Austria and Germany, B.S. degrees require a mandatory research thesis.

Tilman Mehl	Bachelor of Science	Freie Univ. Berlin	Primary/Thesis Adv.	2020
Nils Jenke	Bachelor of Science	Freie Univ. Berlin	Primary/Thesis Adv.	2019
Yannick Hartmaring	Bachelor of Science	Freie Univ. Berlin	Primary/Thesis Adv.	2019

HONORS, AWARDS & CERTIFICATES FOR TEACHING

Certificate in Effective Teaching Practices — Assoc. of College and Univ. Educators — 2025

9-month (25-module) course in effective teaching practices on implementation of evidence-based instructional approaches

Teaching grant–Experiential learning innovation	Fort Hays State University	2023
Teaching grant–Undergraduate research experience	Fort Hays State University	2023
Teaching grant–Industry 4.0	Freie Universität Berlin	2018
Teaching award	Freie Universität Berlin	2017
Scholarship of excellence	Land Niederösterreich	2012
Graduate student research award	American Society of Plant Taxonomists	2011
Graduate student research award	Mycological Society of America	2010
Graduate student research award	Botanical Society of America	2010
Teaching assistant award	University of Texas at Austin	2007

Service

LEADERSHIP TRAINING

LHH Executive Program for Leaders & Managers — LHH | OTM Career Development — 2022

4-month training in communication, transition management, interviews, hearings, and assessments

COMMITTEE WORK

University committees

Strategic Planning & Improv. Committee, Chair	Fort Hays State University	2025–ongoing
Faculty Senate, Full Member	Fort Hays State University	2025–ongoing
Departm. Hiring Committee, Chair	Fort Hays State University	2025
Faculty Senate, Alternate Member	Fort Hays State University	2024–2025
Departm. Graduate Education Committee, Member	Fort Hays State University	2024–ongoing
Departm. Hiring Committee, Member	Fort Hays State University	2024
Departm. Scholarship Committee, Member	Fort Hays State University	2024
Departm. Infrastructure Committee, Member	Freie Universität Berlin	2017–2018

PEER-REVIEW

Funding Agencies

- Deutsche Forschungsgemeinschaft (DFG)

Scientific Journals

- Annals of Botany
- BMC Plant Biology
- Botanical Journal of the Linnean Society
- Frontiers in Plant Science
- GigaScience
- Mathematical Biosciences
- Mitochondrial DNA Part B
- Molecular Ecology
- Molecular Ecology Resources
- Nordic Journal of Botany
- Plant Systematics and Evolution
- PLOS One
- Systematic Botany
- Taxon
- Willdenowia

SCIENTIFIC MEMBERSHIPS

- International Society for Computational Biology (ISCB)
- International Association for Plant Taxonomy (IAPT)
- Austrian Scientists & Scholars in North America (ASCINA)
- German Association of University Professors and Lecturers (DHV)
- German Botanical Society (DBG)
- Council on Undergraduate Research (CUR)

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