**Michael Sieler**

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**WORK EXPERIENCE**

**Oregon State University Sept. 2020 – Present**

*Graduate Research Assistant Corvallis, OR*

* Contribute to 8+ **quantitative research** projects by **statistically analyzing** 1000’s of microbiome samples
  + [**Communicate**](https://michaelsieler.com/en/latest/Publications/publications.html) **research** findings in 3 peer-reviewed papers, 4 talks & posters at international conferences
* Conduct laboratory experiments and statistical pipelines in **R** and **Python** to advance data-driven research goals
* Demonstrate leadership by coordinating **cross-laboratory scientific experiments** with 10+ researchers

**Oregon State University Nov. 2017 – Present**

*Undergraduate Student Researcher Corvallis, OR*

* **Develop novel research methods** to process 1000’s of zebrafish embryos for gut microbiome experiments
* Assist Ph.D. students and post docs research projects by identifying 10+ putative antibiotic compounds

**EDUCATION**

**Oregon State University Expected June, 2025**

*Ph.D. Microbiology, minor Biological Data Sciences. GPA: 3.95 Corvallis, OR*

**Oregon State University June, 2020**

*B.Sc. Bioresource Research, options bioinformatics and genomics. GPA: 3.82 Corvallis, OR*

**RESEARCH PROJECTS**

My research combines **molecular, computational and statistical strategies** to understand how environmental factors (e.g., diet, toxins, pathogens) impact the gut microbiome to influence host health.

* Investigate **multivariate interactions** between diet, toxins and pathogens on gut microbiome composition
* **Quantitatively** assess gut microbiome resilience to anthropogenic impacts (e.g., antibiotics, climate change)
* Apply **deep learning** and **ML** to elucidate underlying mechanisms governing gut microbiome structure

**SIDE PROJECTS**

[Virtual Fish](https://github.com/OSU-Edu-Games/Virtual-Fish) – Browser based educational video game to communicate scientific research to students

* Fulfill USDA grant deliverables to **communicate scientific research**
* Tools used: C#, Unity, Git

[Spotify Genre Viz](https://michael-sieler.shinyapps.io/Spotify_heatmap/) – Interactive R Shiny app to **explore metadata** in a 100,000+ Spotify song database

* Tools used: R, R-shiny, Kaggle

[Microbial Bioinformatics Hub](https://microbial-bioinformatics-hub.readthedocs.io/en/latest/index.html) – Open-source site to **share bioinformatic research** knowledge, methods & tools

* Tools used: Sphinx/ReadTheDocs, HTML/CSS, Git

**SKILLS**

**Programming:** R, Python (OOP, Numpy, TensorFlow), C# (Unity), Git, Unix/Linux, SQL, command line tools, HTML, CSS, C++, LaTeX, Markdown

**Analysis:** hypothesis testing, multivariate linear regression, machine learning, model building and testing, big data query, data management, data visualization

**Bioinformatics/Lab:** 16S sequencing, metagenomics, zebrafish husbandry, PCR

**Other**: Microsoft Office Suite, Adobe Photoshop & Illustrator

**Languages**: German (C1), Spanish