HC, CAS, CEOAS, COF
FACULTY- STUDENT MIXER
Modeling and Mapping Forage Species
Using Expert Knowledge, Field Data, and Climate and Soil
GIS Spatial Data Layers

**Goal:** Expand existing selection tools to inform land manager choice of forage species.

Modeling and mapping activities that incorporate quantitative climatic, soil, and plant tolerance values into high-resolution spatial data overlays.

**Significance:** Appropriate forage selection is key to high productivity and persistence of forage stands and to the sustainability of forage-livestock systems.

**Student Learning Outcomes:**
- Explain why appropriate selection of forage species is essential to economic and environmental sustainability.
- Discuss important climatic and soil factors in forage selection.
- Compare and contrast qualitative and quantitative characteristics of forage species.
- Describe the spatial data layer-based modeling and mapping process.
- Demonstrate competence in website editing.
Research Focus
- Participatory Climate Adaptation Research
- Dry Farming in maritime PNW

https://smallfarms.oregonstate.edu/smallfarms/dry-farming

Undergraduate Research Opportunities

Coordinate variety trial(s) with Dry Farming Collaborative (DFC)

Field Research – maintenance & data collection

Attend DFC Winter Meeting on Feb. 25th to learn more!

Courses Taught
- Tomatoes
- Potatoes
- Squash
- Tepary Beans
Michelle Kutzler, MBA, DVM, PhD, DACT
Animal & Rangeland Sciences Department

Contact Info
Associate Professor
Companion Animal Industries
Office: 561A Weniger Hall
Call/text: 541-740-1434
Email: michelle.kutzler@oregonstate.edu
Website: anrs.oregonstate.edu/users/michelle-kutzler

Research Focus
• Role of luteinizing hormone in the long-term health problems following spaying and neutering in dogs
• Improving fertility in livestock
• Alternative methods for sterilizing horses

Undergraduate Research Opportunities
• Work with sheep, cattle, horses, and dogs
• Cell culture with canine cancer cell lines
• Sperm counts, sperm morphologies, and other sperm testing
• Radioactive & non-radioactive hormone testing

Courses Taught
ANS 401 Research                       ANS 403 Thesis
ANS 405 Calving School                 ANS 410 Internship
ANS 420 Writing Intensive Course       ANS 432 Equine Reproduction
ANS 456 Companion Animal Production   ANS 456 Companion Animal Production
ANS 662 Hormone Action                 ANS 673 Mammalian Reproductive Biology
Paul Hughes
Food Science & Technology

Assistant professor, distilled spirits and departmental lead for hemp

Email: paul.hughes@oregonstate.edu
Office: (541) 737-4595
Mobile: (541) 286-8220

Research focus includes:
• Shelf-life of beers and spirits
• Accelerated ageing of spirits
• Fermentation optimization
• Molecular and kinetic modeling
• Dairy whey valorization
• Rapid screening of hemp crops

Undergraduate research opportunities
• Aspects of accelerated ageing
• Design concept for continuous fermentation and distillation of whey
• Molecular modelers!
  (Note: some COVID-19 restrictions)

Courses taught
• FST251: Intro to beer, wine and spirits
• FST437/537: Chemistry and biochemistry of distilled spirits
• FST438/538: Production and analysis of distilled spirits
<table>
<thead>
<tr>
<th>Instructor in Agricultural and Natural Resources Communication</th>
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<tbody>
<tr>
<td><a href="mailto:cara.lawson@oregonstate.edu">cara.lawson@oregonstate.edu</a></td>
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<table>
<thead>
<tr>
<th>Research Focus:</th>
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<tbody>
<tr>
<td>Agricultural Communications</td>
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<tr>
<td>Framing Theory</td>
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<tr>
<td>Rural Health Communication</td>
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<table>
<thead>
<tr>
<th>Undergraduate Research Opportunities</th>
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<tbody>
<tr>
<td>Investigating issues facing rural society from multiple standpoints - communication, economic, infrastructure, etc.</td>
</tr>
<tr>
<td>Message design and testing for risk in agriculture and natural resources</td>
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<tr>
<td>Comparing public opinion between rural and urban residents on issues of agriculture and natural resources.</td>
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<table>
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<tr>
<th>Undergraduate Courses Taught</th>
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<tbody>
<tr>
<td>AG 351</td>
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<tr>
<td>AG 445</td>
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<tr>
<td>LEAD 443 / 543</td>
</tr>
</tbody>
</table>
Massimo Bionaz
Dairy Management and Nutrigenomics

massimo.bionaz@oregonstate.edu

Research Focus
- Nutrigenomics in livestock
- Milk and human health
- Dairy management and welfare
- Hemp use with livestock

Undergraduate Research Opportunities
1) Use of chicory and selenium supplementation with sheep to improve health and resistance to mastitis (1 ongoing experiment adn1 upcoming experiment)
2) In vivo nutrigenomic of fatty acid mixture in dairy cows (ongoing)
3) Effect on health and cannabinoids residuals in dairy cows fed with spent hemp biomass (upcoming)

Courses Taught
ANS 439/539 Dairy Production Systems (Fall; 4 credits)
ANS 538 Lactation Biology (Spring; 3 credits)
ANS 401 Nutrigenomic research (all terms; 1-16 credits)
Gerald Presley

Teaching
WSE 111 Renewable Materials for a Green Planet
WSE 473 Bioenergy and Environmental Impacts
WSE 520 The Global Forest Sector
WSE xxx (new course) The Rotten World Around Us: The Science of Fungi in the Human Environment

Title & Discipline
Assistant Professor
Department of Wood Science and Engineering
gerald.presley@oregonstate.edu

Research Foci
Wood durability
Utility pole treatments
Environmental performance of wood preservatives
Fungal decay biology
Fungal bioremediation

Undergraduate Research Opportunities
How can Ectomycorrhizal fungi be used to remediate metals in the environment?

- Can we harness ECM fungi to remediate treated wood metals?

- Treated wood in landfills leaches metals
- Metals can leach into groundwater
- ECM fungi can transport and immobilize metals

- As
- Cu
- Cr
- Zn
### Teaching
- WSE 461/561: BioBased Products Manufacturing
- WSE 471/571: Renewable Materials in Building Construction

### Professor
Dept. Wood Science & Engineering
Fred.Kamke@oregonstate.edu

### Research
- *In situ* wood modification for improved composite performance
- Performance of adhesive bonds
- Advanced imaging techniques for adhesive bond evaluation

### Undergraduate Research Opportunities

**Research assistant for 2021:**
- NSF/industry project to enhance water resistance of a structural wood composite
- Chemical treatment, composite manufacture, and performance testing
# Aaron Wolf

## Teaching
- Field geography
- International Water Resources
- Transforming Environmental Conflicts

## Research Foci
- Water resources politics
- Environmental conflict management

## Title & Discipline Contact Information
- Professor of Geography
- Aaron.wolf@oregonstate.edu

## Undergraduate Research Opportunities
- Work on hydropolitical database with research team:
  - Treaty coding
  - Hydropolitical assessment
  - Desk research on water resources international relations
<table>
<thead>
<tr>
<th>Teaching</th>
<th>Title &amp; Discipline</th>
</tr>
</thead>
</table>
| GEO 202 Earth System Science  
GEO 487 Hydrogeology | Associate Professor  
pamela.sullivan@oregonstate.edu  
Office: 541-737-3625  
Burt Hall 114 |

<table>
<thead>
<tr>
<th>Research Foci</th>
<th>Undergraduate Research Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecohydrology</td>
<td>Collecting and analyzing soils in Oregon and Idaho</td>
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</table>
| Interactions of climate, vegetation and geology | Analyzer roots from across the US  
Working with stream water data across the US |
<table>
<thead>
<tr>
<th>Teaching</th>
<th>Senior Instructor I</th>
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<tbody>
<tr>
<td>GEOG 201 Geospatial Science and GIS</td>
<td>Geography and Geospatial Science</td>
</tr>
<tr>
<td>GEOG 360 GIS I: Geographic Information</td>
<td><a href="mailto:beckelor@oregonstate.edu">beckelor@oregonstate.edu</a></td>
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<tr>
<td>Systems &amp; Theory</td>
<td>Wilkinson 242</td>
</tr>
<tr>
<td>GEOG 362 GIS and Spatial Data Science</td>
<td>541-737-6993</td>
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<tr>
<th>Research Foci – Applied GIS</th>
<th>Undergraduate Research Opportunities</th>
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<tbody>
<tr>
<td>• Just Sustainability in Land Use Planning</td>
<td>Corvallis Sustainability Coalition:</td>
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<tr>
<td>• Biomimicry in Sustainable Design</td>
<td>• Landuse Action team</td>
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<td></td>
<td>• Transportation team</td>
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Laurie Yokoyama Becker
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<tr>
<th>Lorenzo Ciannelli</th>
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<tr>
<td>Teaching</td>
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</tbody>
</table>
| OC 574: Early Life History of Fish  
(4 cr, fall) |
| OC 449/549: Data Fisheries Oceanography  
(4 cr, spring) |
<p>| Research Foci     |
| • Ecology of fish early life history stages |
| • Mathematical and statistical modeling of species range shifts |
| • Field research of juvenile and larval fish |
| Title &amp; Discipline |
| Professor         |
| Contact Information |
| 541-737-3142      |
| <a href="mailto:lorenzo.ciannelli@oregonstate.edu">lorenzo.ciannelli@oregonstate.edu</a> |
| Undergraduate Research Opportunities |
| - Modeling dispersal of fish eggs and larvae |
| - Spatial distribution across life history stages |
| - Effect of climate on fisheries population and communities |
| - Climate change and fisheries management |</p>
<table>
<thead>
<tr>
<th>I teach Effective Communication of Environmental Change (GEOG 453 / 553) and special topics in ecology and conservation science</th>
<th>Director, Oregon Climate Change Research Institute Professor, Geography <a href="mailto:erica.fleishman@oregonstate.edu">erica.fleishman@oregonstate.edu</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>OCCRI studies climate science and its effects on natural and human systems in Oregon and the Northwest. I also study ecological responses to environmental change in the Intermountain West and California.</td>
<td>OCCRI welcomes students from all majors to explore climate science and its diverse applications, including environmental equity. We have ideas for projects or can work with you to design a project.</td>
</tr>
</tbody>
</table>
### Teaching
I teach courses on GIS, remote sensing, and human-environment relationships with a focus on vulnerable environments and people.

- GEOG 360 – Introduction to GIS (Spring)
- GEOG 481 – Intermediate Remote Sensing (Winter)
- GEOG 464 – Critical Geospatial Science (Spring)
- GEOG 699 – Geography of Survival (Winter)

### Title & Discipline Contact Information
I am an Assistant Professor of Geography and Geospatial Science in the Geography, Environmental Sciences, and Marine Resource (GEM) discipline group. I completed postdoctoral research at NASA Goddard Space Flight Center, graduated with my PhD in Geography from the Univ. of Wisconsin-Madison, and have a MS in Civil and Environmental Engineering.

Office: Rm 347 Strand Ag Hall  
Email: vandenhj@oregonstate.edu  
Website: [http://ceoas.oregonstate.edu/profile/vandenhoek/](http://ceoas.oregonstate.edu/profile/vandenhoek/)

### Research Foci
My current research addresses the need for better information on where vulnerable people live and what their needs are. I map refugee camps using satellite imagery, and use machine learning to find settlements that haven’t been documented yet.

Here, we see the growth of a Syrian refugee camp in Jordan over the last five years →

### Undergraduate Research Opportunities
There are many opportunities for undergraduates to get involved with our ongoing refugee camp and IDP (internally displaced person) settlement mapping research. It’s a global project (>60 countries) with thousands of sites involved! Example opportunities include:

1. Contributing to global crowdsourced mapping efforts to document locations, boundaries, and environmental conditions at refugee camps and IDP sites. Having this information will help us answer questions about how refugees use and affect the land in/around their camps or the extent to which IDPs grow food in areas near war zones.

2. Interpreting satellite imagery and other mapping products to identify whether refugee camps or IDP sites are even visible in the imagery. It’s very difficult to train a computer to do this since refugee camps and IDP sites vary in size and appearance country to country, and some sites may only be occupied for a few months at a time.
Ed Dever

Research Focus: Ocean Observatories Initiative, OOI
• Long term NSF-funded Observatory
• Multidisciplinary ocean/met time series
• Moorings, gliders, profilers

Undergraduate Research Opportunities
• Working with OOI Data
• Preparing instruments and moorings

Teaching
Upcoming: OC 298, Introduction to Physical Oceanography, OC 401
Research credits
Past: OC 430, Principles of Physical Oceanography, OC 332, Coastal and Estuarine Oceanography
Questions?