### College of Science

- **School**: Biochemistry & Biophysics
- **Department**: Integrative Biology
- **Undergraduate**: Microbiology
- **Graduate Program**: Mathematics
- **Interdisciplinary**: Statistics

**School of Life Sciences**

<table>
<thead>
<tr>
<th>Program</th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Interdisciplinary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry &amp; Biophysics</td>
<td>B.S. (190/23)</td>
<td>B.S. (304/74)</td>
<td>(General Science)</td>
</tr>
<tr>
<td>Zoology</td>
<td>B.S. (266/39)</td>
<td>M.S., Ph.D. (42/18)</td>
<td>B.S. (677/116)</td>
</tr>
<tr>
<td>Microbiology</td>
<td>B.S. (304/74)</td>
<td>M.S., Ph.D. (42/18)</td>
<td>B.S. (677/116)</td>
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<tr>
<td>Mathematics</td>
<td>B.S. (164/32)</td>
<td>M.S., Ph.D. (42/18)</td>
<td>B.S. (677/116)</td>
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<tr>
<td>Physics</td>
<td>B.S. (210/36)</td>
<td>M.S., Ph.D. (113/19)</td>
<td>B.S. (677/116)</td>
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<tr>
<td>Chemistry</td>
<td>B.S. (210/36)</td>
<td>M.S., Ph.D. (113/19)</td>
<td>B.S. (677/116)</td>
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**Notes**

- College of Science and OSU faculty involvement in M.S. and Certificate in Data Analytics.
- This proposed graduate degree and certificate programs will involve faculty from Statistics (Colleges of Science and Agricultural Sciences) as well as other faculty from across the university, including:
  - College of Public Health & Human Services
  - College of Engineering
  - Electrical Engineering and Computer Science
  - College of Business

**Interdisciplinary Programs**

- Environ. Science
- Molecular & Cellular Biology
- Water Resources
COLLEGE OF SCIENCE

Science is the heart of Oregon State University.

- Our College teaches everyone and has the highest number of student credit hours.
- Our College has tremendous momentum in research funding: FY 2014-15 was a record year for grants with $27 million and a 170% increase Year-over-Year.
- Our College fosters a community of excellence among our faculty and students.
  - Highest number of distinguished university professors: 19
  - 38 AAAS Fellows, two National Academy of Science members and one MacArthur Fellow
  - 48 new inventions disclosed and 18 U.S. patents received since 2011
  - 1/3 of Honors College students are science majors
  - 11 of the 14 Goldwater scholars at OSU since 2004 have been science students

The College has a strong strategic direction, with the launch of our 2015-2020 Strategic Plan that is key to student success and research excellence.

- Our College will build a diverse and inclusive science community focused on excellence.
- Our College will be a global leader in scientific research and scholarship for a better world.
  - Strategic areas of opportunity: marine science, materials science, biohealth science and data science
- Our College will excel in outreach, engagement, visibility and economic development.
M.S. in Data Analytics
and
Graduate Certificate in Data Analytics

Oregon State University
College of Science
Department of Statistics

Virginia Lesser
March 30, 2016
Two proposed degrees:

1. Master of Science in Data Analytics
   - 45 credit hours
   - Option in Health Analytics

2. Graduate Certificate in Data Analytics
   - 18 credit hours
Why Develop New Programs?

• Growing volume of information that is captured, stored cheaply and retrieved quickly.

• Need for skills in data management and data analysis technologies to analyze a large volume of data.
What are Some Benefits of These New Programs?

• Graduates will have the tools to discern patterns, evaluate the need to create new designs, and assess consumer confidence.

• These programs address the significant current shortage of people with the needed training (in statistics and machine learning) to analyze and interpret.
Delivery of Programs

- All courses delivered online.
- Allows current industry and government professionals to stay in the workforce.
- Strong OSU Extended Campus to assist in online course development.
- Courses developed with OSU faculty teaching similar on-campus courses.
Details of Coursework

• Computer Science:
  – Data management; structured and unstructured data; cloud data processing; machine learning: supervised and unsupervised learning.

• Statistics:
  – Hypothesis testing; regression; time series; multivariate analyses; data visualization; data mining.

• Capstone project