Academic Programs
at Department of Statistics
Statistics Programs
Statistician is one of the best jobs in modern era.
What are the best jobs in the US? Science, technology and health care make up many of them

Grant Suneson, 24/7 Wall Street
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5. Statistician

- Median annual wages: $84,060
- Projected job growth, 2016-2026: 33.8%
- Total employment: 36,540

Statisticians are part of one of the fastest growing career fields in the country. The number of statistician jobs is projected to increase by more than a third by 2026, the largest projected job growth of any of the top 25 best professions in the country. Statisticians typically enjoy some of the best work environments and lowest-stress careers in the country.

Statisticians have great future in the job market.
BS in Statistics

PROGRAM REQUIREMENTS

- MATH 1220: Calculus I (four hours)
- MATH 1230: Calculus II (four hours)
- MATH 2300: Elementary Linear Algebra (four hours)
- MATH 2720: Multivariate Calculus and Matrix Algebra (four hours)
- STAT 2600: Statistics Using R (four hours)
- STAT 3620: Probability (four hours)
- STAT 3640: Statistical Methods (four hours)
- STAT 4810: Communicating Statistical Results (three hours)
- One of:
  - STAT 4620: Intro to Mathematical Statistics (three hours)
  - STAT 6500: Statistical Theory (four hours)
- One of:
  - STAT 4640: Intro to Statistical Computing (three hours)
  - STAT 6800: SAS Programming (three hours)
- One of:
  - STAT 5670: Statistical Design and Analysis of Experiments (four hours)
  - STAT 6640: Design of Experiments (three hours)
- One of:
  - STAT 5680: Regression Analysis (three hours)
  - STAT 6620: Applied Linear Models (three hours)
- Two of the following electives:
  - STAT 5610: Applied Multivariate Statistical Methods (three hours)
  - STAT 5630: Sample Survey Methods (three hours)
  - STAT 5660: Nonparametric Statistical Methods (three hours)
  - STAT 5820: Time Series Analysis (three hours)
Required courses (11 hours)
• STAT 3620: Probability (four hours)
• STAT 3640: Statistical Methods (four hours)
• STAT 4640: Intro to Statistical Computing (three hours)

Choose two electives (six hours)
• STAT 5610: Applied Multivariate Statistical Methods (three hours)
• STAT 5670: Statistical Design and Analysis of Experiments (four hours)
• STAT 5680: Regression Analysis (three hours)

4 more courses!
Minor in Data Analysis

PROGRAM REQUIREMENTS

• Introduction to Statistics (choose from Stat 2160, 2600, 2830, 3640 or 3660)
• STAT 4640: Introduction to Statistical Computing (three hours)

Choose three electives (one must come from 5670 or 5680)
• STAT 5610: Applied Multivariate Statistical Methods (three hours)
• STAT 5630: Sample Survey Methods (three hours)
• STAT 5660: Nonparametric Statistical Methods (three hours)
• STAT 5670: Statistical Design and Analysis of Experiments (four hours)
• STAT 5680: Regression Analysis (three hours)
• STAT 5820: Time Series Analysis (three hours)
• An approved quantitative research course from student's home department

3 more courses!
Data Science Programs
## 50 Best Jobs in America for 2019

<table>
<thead>
<tr>
<th>Job Title</th>
<th>Median Base Salary</th>
<th>Job Satisfaction</th>
<th>Job Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Data Scientist</td>
<td>$108,000</td>
<td>4.3/5</td>
<td>6,510</td>
</tr>
<tr>
<td>#2 Nursing Manager</td>
<td>$83,000</td>
<td>4/5</td>
<td>13,931</td>
</tr>
<tr>
<td>#3 Marketing Manager</td>
<td>$82,000</td>
<td>4.2/5</td>
<td>7,395</td>
</tr>
<tr>
<td>#4 Occupational Therapist</td>
<td>$74,000</td>
<td>4/5</td>
<td>17,701</td>
</tr>
</tbody>
</table>
Glassdoor picked Data Scientist as the best job for four years in a row.

<table>
<thead>
<tr>
<th>Year</th>
<th>Rank</th>
<th>Job Title</th>
<th>Median Base Salary</th>
<th>Job Satisfaction</th>
<th>Job Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>#1</td>
<td>Data Scientist</td>
<td>$108,000</td>
<td>4.3/5</td>
<td>6,510</td>
</tr>
<tr>
<td>2018</td>
<td>#1</td>
<td>Data Scientist</td>
<td>$110,000</td>
<td>4.2/5</td>
<td>4,524</td>
</tr>
<tr>
<td>2017</td>
<td>#1</td>
<td>Data Scientist</td>
<td>$110,000</td>
<td>4.4/5</td>
<td>4,184</td>
</tr>
<tr>
<td>2016</td>
<td>#1</td>
<td>Data Scientist</td>
<td>$116,840</td>
<td>4.1/5</td>
<td>1,736</td>
</tr>
</tbody>
</table>

Increasing job opening
BS in Data Science

PROGRAM REQUIREMENTS

Math core (eight hours)
• MATH 1220: Calculus I (four hours)
• MATH 2300: Elementary Linear Algebra (four hours)

Computer science core (15 hours)
• CS 2610: R Programming for Data Science (four hours)
• CS 3100: Storage and Retrieval of Big Data (three hours)
• CS 5821: Machine Learning (three hours)
• CS 4900: Senior Design I (three hours)
• CS 4910: Senior Design II (two hours)

Statistics core (16 hours)
• STAT 2600: Statistics Using R (four hours)
• STAT 4640: Intro to Statistical Computing (three hours)
• STAT 5680: Regression Analysis (three hours)
• STAT 5870: Big Data Analysis Using Python (three hours)
• STAT 5860: Computer Based Data Analysis (three hours)

Choose two from the following electives (six hours)
• CS 3400, 3500, 4430/5430, 5180, 5260, 5300, 5400, 5550, 5700, 5820
• STAT 5610, 5660, 5820, 5670

Other requirements
• Writing Course: CS 4900/4910.
• All students are required to have a laptop.
PROGRAM REQUIREMENTS

Required (seven hours)
• STAT 2600: Statistics Using R (four hours)
• STAT 4640: Intro to Statistical Computing (three hours)

Choose three electives (nine hours)
• STAT 5680: Regression Analysis (three hours)
• STAT 5850: Applied Data Mining (three hours)
• STAT 5860: Computer Based Data Analysis (three hours)
• An approved quantitative research course from student's home department
Graduate Programs
**MS in Statistics**

- Typical plan of study: 2 years.
- Minimum credit hours: 32 credits.

- **Accelerated program (AGDP) is available.**

- Assistantships are available!

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**MS in Data Science**

- Typical plan of study: 2 years / 16 months.
- Minimum credit hours: 35 credits.

- **Accelerated program (AGDP) is available.**
Statistics
• **BS, Minor:** Michelle Hastings (michelle.hastings@wmich.edu)
• **MS:** Joshua Naranjo (joshua.naranjo@wmich.edu)

Data Science
• **BS, MS:** Kevin Lee (k.lee@wmich.edu)
• **BS, MS, Minor:** Joseph McKean (joseph.mckean@wmich.edu)
• **MS:** Hyun Bin Kang (h.kang@wmich.edu)