

# Tentative Topics Schedule

Fall 2022 - University of Portland

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- See Books & Online Resources List for the reading materials -

The pre-readings and post-readings are not mandatory but it is encouraged.

Lecture slides and Mini-Assignments will be available the day before class.

Modules will be available two weeks before the deadline.

The “Reading” column in the table below contains a number on which it refers to a numbered item in the Books & Online Resources List. For example “[PSDR]” refers to the first item in the list, which is our main text book titled “Probability, Statistics, and Data: A fresh approach using R”.

## Topics and Reading Materials

| Day   | Topic                                    | Pre-Reading                           | Post-Reading   | Assignment | Deadline    |
|-------|--|---------------------------------------|----------------|------------|-------------|
| 8/30  | Orientation & Calculus Review            | Syllabus                              | -              | TBA        | 8/30        |
| 9/1   | Basics of Probability Theory Part 1      | [PSDR] Ch. 2 (Preamble), Ch. 2.1      | -              | TBA        | 9/1         |
| 9/6   | Basics of Probability Theory Part 2      | [PSDR] Ch. 2.1 Continued & Ch. 2.4    | [PSDR] Ch. 2.2 | TBA        | 9/6         |
| 9/8   | Independence & Conditional Probability   | [PSDR] Ch. 2.3 (Preamble) & Ch. 2.3.1 | -              | TBA        | 9/8         |
| -     | <b>Module 1 Due</b>                      | -                                     | -              | -          | <b>9/6</b>  |
| 9/13  | Bayes Theorem                            | [PSDR] Ch. 2.3.3                      | -              | TBA        | 9/13        |
| 9/15  | Random Variables & Probability Functions | -                                     | -              | TBA        | 9/15        |
| 9/20  | Discrete Random Variables (DRVs)         | [PSDR] Ch. 3 (Preamble)               | -              | TBA        | 9/20        |
| 9/22  | Probability Mass Functions               | [PSDR] Ch. 3.1                        | -              | TBA        | 9/22        |
| 9/27  | Expected Values for DRVs                 | [PSDR] Ch. 3.2                        | -              | TBA        | 9/27        |
| 9/29  | Moment Generating Functions              | [PSDR] Ch. 3.4                        | -              | TBA        | 9/29        |
| -     | <b>Module 2 Due</b>                      | -                                     | -              | -          | <b>9/30</b> |
| 10/4  | Variance for DRVs                        | [PSDR] Ch. 3.5                        | -              | TBA        | 10/4        |
| 10/6  | Covariance & Correlation for DRVs        | [PSDR] Ch. 3.5 (Continued)            | -              | TBA        | 10/6        |
| 10/11 | Binomial Random Variables                | [PSDR] Ch. 3.3.1                      | -              | TBA        | 10/11       |
| 10/13 | Geometric Random Variables               | [PSDR] Ch 3.3.2                       | [PSDR] Ch. 3.6 | TBA        | 10/13       |

| Day   | Topic                                   | Pre-Reading | Post-Reading | Assignment | Deadline     |
|-------|---|-------------|--------------|------------|--------------|
| -     | <b>Mini-Project 1 Due</b>               | -           | -            | -          | <b>10/14</b> |
| -     | <i>Fall Vacation</i>                    | -           | -            | -          | -            |
| 10/25 | Review                                  | -           | -            | -          | -            |
| 10/27 | Continuous Random Variables (CRVs)      | TBA         | -            | TBA        | 10/27        |
| -     | <b>Module 3 Due</b>                     | -           | -            | -          | <b>10/28</b> |
| 11/1  | Probability Density Functions           | TBA         | -            | TBA        | 11/1         |
| 11/3  | Moment Generating Functions for CRVs    | TBA         | -            | TBA        | 11/3         |
| 11/8  | Joint & Marginal Distributions for CRVs | TBA         | -            | TBA        | 11/8         |
| 11/10 | Covariance & Correlation for CRVs       | TBA         | -            | TBA        | 11/10        |
| 11/15 | Exponential Random Variables            | TBA         | -            | TBA        | 11/15        |
| 11/17 | Normal Random Variables                 | TBA         | -            | TBA        | 11/17        |
| -     | <b>Module 4 Due</b>                     | -           | -            | -          | <b>11/22</b> |
| 11/22 | Special Office Hours                    | TBA         | -            | TBA        | 11/22        |
| -     | <i>Thanksgiving Vacation</i>            | -           | -            | -          | -            |
| 11/29 | The Law of Large Numbers                | TBA         | -            | TBA        | 11/29        |
| 12/1  | The Central Limit Theorem               | TBA         | -            | TBA        | 12/1         |
| 12/6  | Point Estimators                        | TBA         | -            | TBA        | 12/6         |
| 12/8  | Maximum Likelihood Estimation           | TBA         | -            | TBA        | 12/8         |
| -     | <b>Module 5 Due</b>                     | -           | -            | -          | <b>12/9</b>  |
| -     | <b>Mini-Project 2 Due</b>               | -           | -            | -          | <b>12/15</b> |

## Books & Online Resources Lists

### Main Textbook

[PSDR] [Speegle, D., & Clair, B. \(2021\). Probability, Statistics, and Data: A Fresh Approach Using R. Chapman and Hall/CRC.](#)

### Supplementary Textbook

[IPSR] [Pishro-Nik, H. \(2016\). Introduction to probability, statistics, and random processes.](#)