Statistical Thinking for Forensic Practitioners

Part 0: Course Details

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Outline

Welcome to Statistical Thinking for Forensic Practitioners!

This slide set will cover the following details:

- Course structure
- Scheduling details
- Administrative information

Learning Objectives

1. Understand the differences between populations and samples and methods to make inferences from the sample to the population, and the consequent need for well-designed experiments and surveys.
2. Be able to critically assess the designs used in published scientific papers and their impact on the findings presented by investigators. Students will be asked to evaluate designs and their strengths and weaknesses.
3. Be able to read the course textbook and similar texts to update their knowledge as their need for additional statistical knowledge evolves. Students should be able to identify situations where additional professional statistical help is called for.
4. Be able to calculate minimum sample sizes for basic experimental designs and surveys, and other basic statistics.

Course Structure

Divided into 9 section covering various aspects of probability & statistics and how they apply to forensics.

Refer to the Course Syllabus for topics covered in each part.

Lectures are provided as recorded videos. Each of the 9 sections has between 2-5 lecture videos that are approximately 45-60 minutes in length.

Ungraded quizzes and Excel labs accompany each section to check your understanding & supplement your learning.

Final exam will assess your understanding of the course content.

Course Website Homepage

https://forensicstats.org/statistics-for-forensic-practitioners/

Course Material Links

Materials

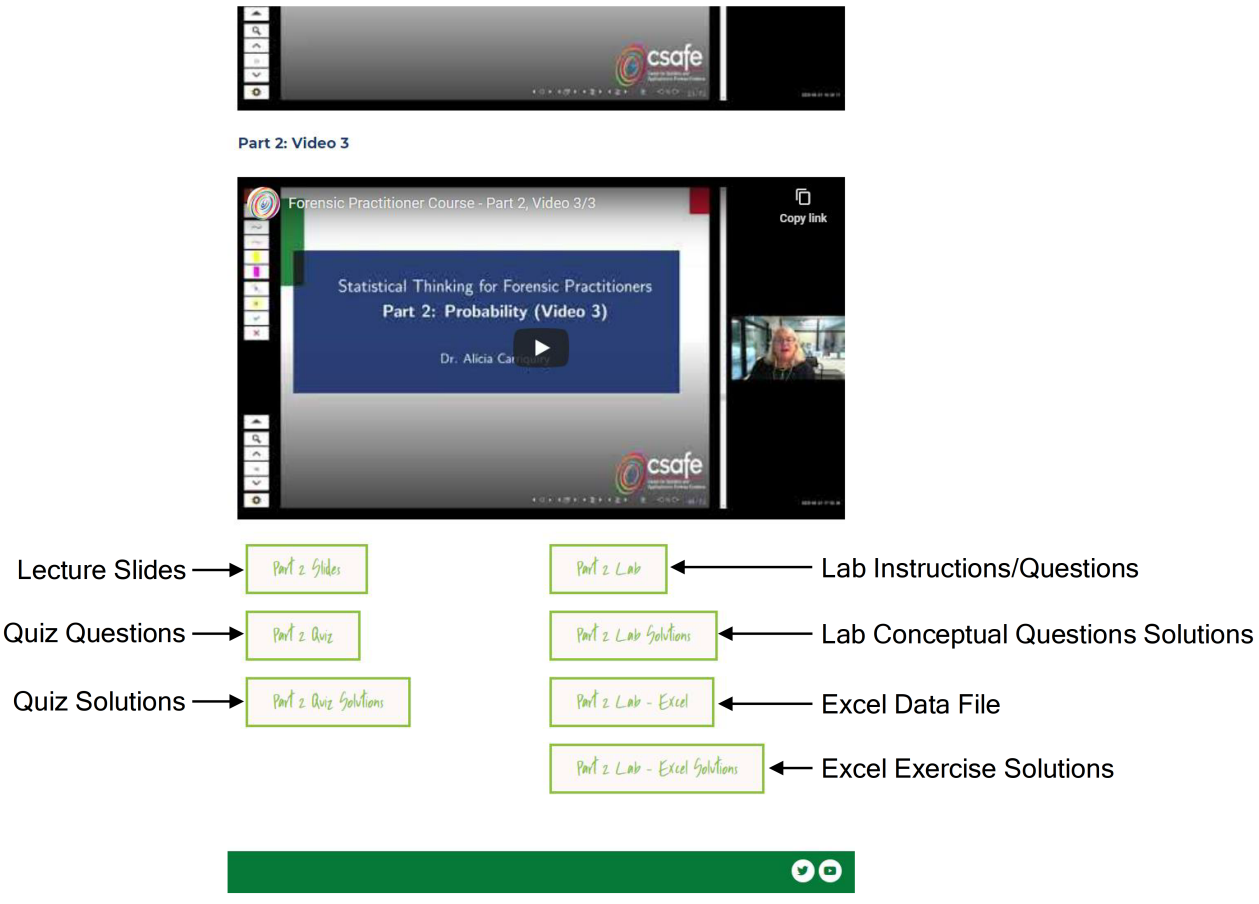
All course materials are accessible via the course website.

The materials include:

- Lecture videos & accompanying slides
- Quizzes & solution keys
- Excel labs, accompanying `.xlsx` data files, & solution keys
- Enrichment materials (where applicable)

Course Website Material

Bottom of each Section's page contains downloadable material:



Note that Parts 1 and 8 do not have an Excel lab.

Assessment

Each section has an associated quiz and (barring Part 1) Excel lab. These are low-stakes assessments intended to check your understanding. They will not be graded, but solution keys are provided.

You may send questions via email to csafelearning@iastate.edu.

The final exam is the only graded assessment. It is cumulative over the entire course.

Quizzes

Apply lecture material to forensics-oriented and other problems.

Minimal computation required.

Focus is on:

- understanding how statistics can be used/misused.
- identifying patterns that can be mathematically or statistically described.
- realizing that not all statistical "solutions" are ideal: "All models are wrong, but some are useful."

Solutions are provided on the course website. Note that Part 9 does not have a quiz.

Excel Labs

Apply more computationally-intensive concepts (formulas, graphing, etc.) using Excel.

Focus is on:

- developing proficiency with computational tools in Excel.
- creating and interpreting various data summaries (numerical, graphical, etc.)
- making lecture concepts concrete by using real data.

Solutions to conceptual questions & Excel exercises are provided on the course website (as two separate files).
Note that Parts 1 and 8 do not have an Excel lab.

Contact Information

Email: csafelearning@iastate.edu

Thank you for being a part of Statistical Thinking for Forensic Practitioners!