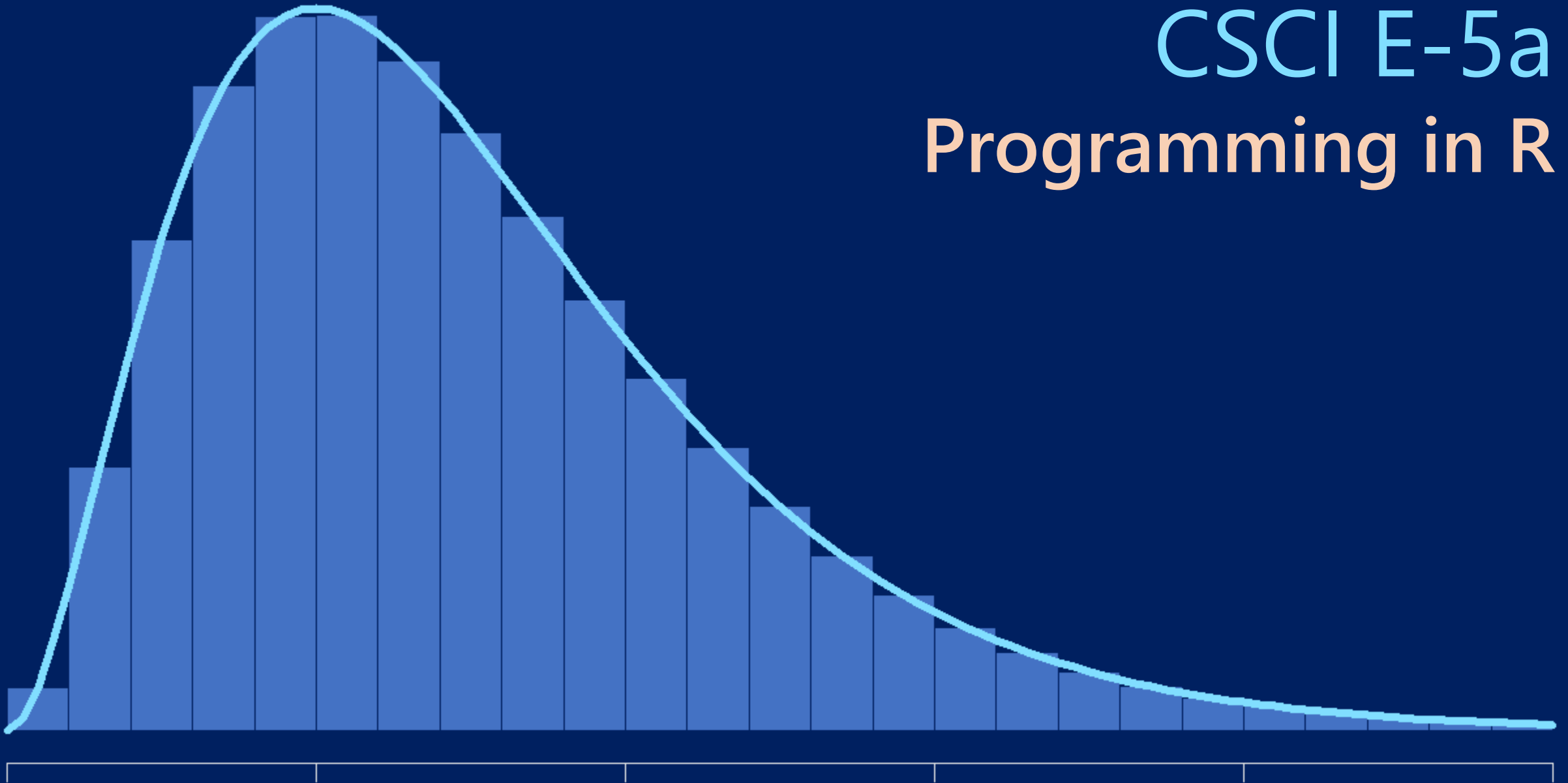


CSCI E-5a

Programming in R



Midterm Assessment

Quick Review

Section 1

Exam Format

Midterm Assessment

- Preliminary Release
- Final Release
- Deadline

Preliminary Release

- Monday, March 7, 5:00 PM EDT
- Read-through during Monday Zoom session

Final Release

- Tuesday, March 8, 5:00 PM EST
- Submit the final release
- No time limit

Deadline

- Monday, March 14, 11 PM EDT
- Gradescope

Document

- R notebook & R object file
- Identical format to problem sets
- Long

Grading

- 80 total points: 8 problems, 10 points each
- Partial credit
- No regrades

Materials

- Open book, open notes
- General references OK
- No collaboration

Section 2

Week 1: Base R Graphics

Main idea

- Graphics plots
- Points, Lines, Polygons
- Curves

Section 3

Module 2: Numeric Values

Main ideas

- Arithmetic & operator precedence
- Variables

Final Grades

- Standardizing Raw Scores
- Weighted averages
- Conditional branching

Sports Analytics

- Definitions
- Formulas

Mathematical Functions

- Quadratic polynomials
- Polynomials
- Exponential & logarithmic

Section 4

Week 3: Vectors

Main ideas

- Definitions
- Basic functions
- Constructing vectors

Main ideas

- Vector indexing
- Vectorized operations
- Lookup vectors

Section 5

Week 4: Iteration

Main ideas

- `for()` loops
- Looping over indices
- Iteration vs. vectorized operations

Applications

- Reports
- Loan amortization
- Moving average
- Newton's method

Section 6

Week 5: Logical Values

Main ideas

- Definitions, functions
- Sample counts and proportions
- Logical indexing

Main ideas

- NA
- Conditional branching

Section 7

Cleaning data

Main ideas

- Detect and fix typos
- Convert -9 to NA
- Convert NA to number

Section 8

Graphs

Main ideas

- Mathematical functions
- Pie charts
- Stripcharts
- Histogram and curve

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