

COURSE CURRICULUM

This course will provide you with a detailed explanation of the key statistical concepts and principles tested on USMLE Step 1 and Step 2 CK, translating into enhanced understanding and higher scores on your exams.

Lesson 1: Study Design

This lesson will review the major types of study designs:

- Prospective cohort studies
- Retrospective cohort studies
- Case-control studies
- Case series
- Cross-sectional studies
- Randomized controlled trials, including:
 - Phases of randomized controlled clinical trials (RCTs)
 - Common experimental designs of RCTs
 - Advantages and disadvantages of RCTs
- Ecological studies
- Practice questions on study design

Video length: [54 min](#)

Lesson 2: Diagnostic Tests

Diagnostic tests and assessment measures are commonly tested on USMLE. This lesson will review the following topics:

- Incidence vs. prevalence
- Sensitivity vs. specificity
- Positive and negative predictive values
- Changing the cutoff value
- Receiver Operating Characteristic (ROC curves)
- Practice questions on Diagnostic Tests

Video length: [1 hr 15 min](#)

Lesson 3: Risk Estimation

This lesson will review different measures for risk estimation, including:

- Relative risk
- Odds ratio
- Attributable risk
- Relative risk reduction

- Absolute risk reduction
- Number needed to treat
- Number needed to harm
- Practice questions on Risk Estimation

Video length: 58 min

Lesson 4: Measures of Central Tendency & Dispersion

Data description and basic statistical analysis are crucial components of USMLE. This lesson will discuss:

- Mean, median, and mode
- Standard deviation
- Standard error of the mean
- Normal distribution
- Skewed distribution
- Practice questions on Measures of Central Tendency & Dispersion

video length: 20 min

Lesson 5: Hypothesis Testing & Statistical Error

Different statistical tests are used to assess research hypotheses. In this lesson, we will review the details of the following concepts:

- Hypothesis testing: null and alternative hypothesis
- Type I and type II error
- Various types of data (numerical, categorical, etc.)
- Statistical tests
- Correlation coefficient
- Confidence interval
- Practice questions on Hypothesis Testing & Statistical error checks

video length: [1 hr 20 min](#)

Lesson 6: Bias

Research studies may be affected by various forms of bias. This lesson will review such unwanted sources of error, including:

- Confounding and effect modification
- Selection bias
- Measurement bias

- Recall bias
- Lead time bias
- Reliability and validity
- Internal and external validity
- Practice questions on Bias

video length: [1 hr 15 min](#)

Lesson 7: Abstracts

This lesson will review several examples abstracts to illustrate the topics discussed in previous lessons. This section of the course is especially high yield for STEP 2 CK and STEP 3.

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