Curriculum: Medical Statistics for Acupuncture

Duration: 30 hours (10 sessions × 3 hours)
Software: JASP, Jamovi (free SPSS alternatives)
Focus: Practical case studies in acupuncture research, epidemiological methods, meta-analysis, regression, and health-related statistics

Session 1: Introduction to Biostatistics in Acupuncture
Objectives:
• Understand the role of biostatistics in advancing acupuncture research.
• Learn to navigate free statistical software (JASP/Jamovi) for data analysis.

Content:
• Overview of biostatistical concepts: acupuncture studies' population, sample, and variable types.
• Ethical considerations in data collection and patient confidentiality in acupuncture research.
• Software Tutorial: Data import and basic operations in JASP/Jamovi.

Practical Case:
• Analyze a dataset on acupuncture efficacy for pain management using descriptive statistics.

Session 2: Data Types and Descriptive Statistics in Acupuncture Research
Objectives:
• Classify data types (nominal, ordinal, continuous) relevant to acupuncture outcomes.
• Calculate measures of central tendency and dispersion for acupuncture trial data.

Content:
• Understanding data specific to acupuncture (e.g., treatment protocols, patient response scales).
• Graphical representation: Bar charts, histograms, and box plots for acupuncture outcomes.

Practical Case:
• Visualize patient demographics and treatment responses from an acupuncture clinic dataset using Jamovi.

Session 3: Epidemiological Study Designs in Acupuncture
Objectives:

• Compare study designs (case-control, cohort, cross-sectional) in the context of acupuncture research.

Content:
• Applications of epidemiological methods in evaluating acupuncture safety and effectiveness.
• Discussion of bias and confounding factors unique to acupuncture studies.

Practical Case:
• Design a case-control study to assess adverse effects or treatment responses related to acupuncture.

Session 4: Measures of Association and Risk in Acupuncture Studies
Objectives:
• Calculate and interpret measures such as relative risk (RR) and odds ratio (OR) in acupuncture research.

Content:
• Application of these measures to assess outcomes such as treatment success or recurrence of symptoms following acupuncture.

Practical Case:
• Analyze a cohort study on the recurrence of pain after acupuncture treatments using JASP.

Session 5: Meta-Analysis Fundamentals for Acupuncture Trials
Objectives:
• Learn to synthesize evidence from multiple acupuncture trials.

Content:
• Introduction to fixed vs. random effects models and assessing heterogeneity in acupuncture studies.

Practical Case:
• Conduct a meta-analysis of acupuncture trials for anxiety or pain management using JASP.

Session 6: Correlation and Regression Analysis in Acupuncture Research
Objectives:
• Use linear regression to predict treatment outcomes based on acupuncture protocols.

Content:
• Distinguishing correlation from causation in the context of acupuncture data.

Practical Case:
• Model the relationship between needle insertion depth (or session frequency) and symptom improvement using Jamovi.

Session 7: Logistic Regression in Acupuncture
Objectives:
• Analyze binary outcomes (e.g., treatment success/failure) using logistic regression.

Practical Case:
• Predict the success rate of acupuncture interventions for chronic pain management with JASP.

Session 8: Survival Analysis Basics in Acupuncture
Objectives:
• Apply Kaplan-Meier curves and survival analysis methods to assess long-term outcomes in acupuncture studies.

Practical Case:
• Analyze patient longevity or time to symptom recurrence following acupuncture treatment using Jamovi.

Session 9: Diagnostic Test Evaluation in Acupuncture
Objectives:
• Calculate sensitivity, specificity, and ROC curves for diagnostic tests or acupuncture treatment indicators.

Content:
• Evaluate diagnostic measures (e.g., response to acupuncture stimulation) to inform clinical decisions.

Practical Case:
• Assess the accuracy of acupuncture-based diagnostic criteria for identifying specific pain syndromes using JASP.

Session 10: Critical Appraisal & Final Project in Acupuncture Research
Objectives:
• Critically evaluate published acupuncture research papers using biostatistical methods.
• Present a comprehensive biostatistical analysis.

Practical Case:
• Final Project: Analyze an acupuncture dataset (e.g., effects of acupuncture on

hypertension) and present findings.
• Group discussion and peer review of statistical approaches and interpretations.

Assessment:
• Quizzes (50%), case study reports (20%), final project (30%).

Resources:
• Simulated acupuncture datasets, statistical software guides, and access to published acupuncture research.

Prerequisites:
• Basic computer literacy and familiarity with acupuncture practice and terminology.