# 2021 Summer Institute in Statistics for Clinical & Epidemiological Research (SISCER)

## Weeks 1 & 2

<table>
<thead>
<tr>
<th>Monday, July 5</th>
<th>Tuesday, July 6</th>
<th>Wednesday, July 7</th>
<th>Thursday, July 8</th>
<th>Friday, July 9</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>1-Special Topics in Clinical Trials: Interpreting Exploratory Analyses &amp; When are Biomarkers Valid surrogates?</td>
<td>4-Adaptive Enrichment Clinical Trial Designs: Methods and Software</td>
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<td></td>
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<td>2-Small Area Estimation (Two sessions: 8:30 AM–noon Pacific and 1–4:30 PM Pacific)</td>
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<td>3- Age-Period-Cohort Analysis</td>
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<td>Monday, July 12</td>
<td>Tuesday, July 13</td>
<td>Wednesday, July 14</td>
<td>Thursday, July 15</td>
<td>Friday, July 16</td>
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<tr>
<td>5-Evaluation of Biomarkers and Risk Models</td>
<td>7-Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables</td>
<td>8-Bayesian Adaptive Clinical Trial Design</td>
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<td>6-Modern Statistical Learning for Observational Data</td>
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Sessions are 8:30 AM – noon Pacific (11:30 AM – 3 PM Eastern)
Module 2 also meets 1 – 4:30 PM Pacific (4 – 7:30 PM Eastern)
## 2021 Summer Institute in Statistics for Clinical & Epidemiological Research (SISCER)

### Weeks 3 & 4

<table>
<thead>
<tr>
<th>Monday, July 19</th>
<th>Tuesday, July 20</th>
<th>Wednesday, July 21</th>
<th>Thursday, July 22</th>
<th>Friday, July 23</th>
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<tbody>
<tr>
<td>9-Analyzing Data from Complex Surveys (1-4:30 PM Pacific)</td>
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<td>13-Statistical Learning in Mediation Analysis</td>
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<tr>
<td>Monday, July 26</td>
<td>Tuesday, July 27</td>
<td>Wednesday, July 28</td>
<td>Thursday, July 29</td>
<td>Friday, July 30</td>
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<tr>
<td>14-Joint Modeling of Longitudinal and Survival Data</td>
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<td>17-Propensity Scores</td>
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<tr>
<td>15-Developing Prognostic and Predictive Biomarkers with High Dimensional Data</td>
<td>16-Use of Prognostic &amp; Predictive Biomarkers in the Design of Clinical Studies</td>
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</tbody>
</table>

Sessions are 8:30 AM – noon Pacific (11:30 AM – 3 PM Eastern), except for Module 9 which meets 1 – 4:30 PM Pacific (4 – 7:30 PM Eastern).
# 2021 SISCER Modules by Content Area

## Clinical Trials
- **Module 1**: Special Topics in Clinical Trials: Exploratory Analyses & Biomarkers as Surrogates?
- **Module 4**: Adaptive Enrichment Clinical Trial Designs
- **Module 7**: Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables
- **Module 8**: Bayesian Adaptive Clinical Trial Design
- **Module 12**: Survival Analysis with Emphasis on Applications to Clinical Trials
- **Module 16**: Use of Prognostic & Predictive Biomarkers in the Design of Clinical Studies

## Epidemiologic Methods
- **Module 2**: Small Area Estimation
- **Module 3**: Age-Period-Cohort Modeling and Analysis
- **Module 6**: Modern Statistical Learning for Observational Data
- **Module 9**: Analyzing Data from Complex Surveys
- **Module 10**: Generalized Estimating Equations for Longitudinal Data Analysis
- **Module 11**: Mixed-effects Models for Longitudinal Data Analysis
- **Module 12**: Survival Analysis with Emphasis on Applications to Clinical Trials
- **Module 13**: Statistical Learning in Mediation Analysis
- **Module 14**: Joint Modeling of Longitudinal and Survival Data
- **Module 17**: Propensity Scores

## Bayesian Methods
- **Module 2**: Small Area Estimation
- **Module 3**: Age-Period-Cohort Modeling and Analysis
- **Module 8**: Bayesian Adaptive Clinical Trial Design

## Biomarkers
- **Module 1**: Special Topics in Clinical Trials: Exploratory Analyses & Biomarkers as Surrogates?
- **Module 5**: Evaluation of Biomarkers and Risk Models
- **Module 15**: Developing Prognostic and Predictive Biomarkers with High Dimensional Data
- **Module 16**: Use of Prognostic & Predictive Biomarkers in the Design of Clinical Studies

## Complex Surveys
- **Module 2**: Small Area Estimation
- **Module 9**: Analyzing Data from Complex Surveys
2021 SISCER Modules & Instructors, Weeks 1 & 2

July 7
Module 1: Special Topics in Clinical Trials: Interpreting Exploratory Analyses & When Are Biomarkers Valid Surrogates?
Thomas Fleming, University of Washington

Module 2: Small Area Estimation – Jonathan Wakefield, University of Washington

July 8 to July 9
Module 3: Age-Period-Cohort Modeling and Analysis – Jonathan Wakefield, University of Washington

Module 4: Adaptive Enrichment Clinical Trial Designs: Methods and Software – Michael Rosenblum, Johns Hopkins University

July 12 to July 13
Module 5: Evaluation of Biomarkers and Risk Models – Kathleen Kerr, University of Washington

July 12 to July 15
Module 6: Modern Statistical Learning for Observational Data
Marco Carone, University of Washington; David Benkeser, Emory University

July 14
Module 7: Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables
Michael Rosenblum, Johns Hopkins University

July 15 to July 16
Module 8: Bayesian Adaptive Clinical Trial Design – Jason Connor, ConfluenceStat & University of Central Florida
2021 SISCER Modules & Instructors, Weeks 3 & 4

July 19 to July 20
Module 9: Analyzing Data from Complex Surveys – Thomas Lumley, University of Auckland

July 19
Module 10: Generalized Estimating Equations for Longitudinal Data Analysis – Ben French, Vanderbilt University

July 20
Module 11: Mixed-effects Models for Longitudinal Data Analysis – Ben French, Vanderbilt University

July 21 to July 23
Module 12: Survival Analysis with Emphasis on Applications to Clinical Trials
Ying Qing Chen, University of Washington & Fred Hutchinson Cancer Research Center

Module 13: Statistical Learning in Mediation Analysis
Marco Carone, University of Washington; David Benkeser, Emory University; Iván Díaz, Weill Cornell Medicine

July 26 to July 27
Module 14: Joint Modeling of Longitudinal and Survival Data – Ben French, Vanderbilt University

Module 15: Developing Prognostic and Predictive Biomarkers with High Dimensional Data
Noah Simon, University of Washington; Richard Simon, R Simon Consulting

July 28 to July 29
Module 16: Use of Prognostic & Predictive Biomarkers in the Design of Clinical Studies
Noah Simon, University of Washington; Richard Simon, R Simon Consulting

Module 17: Propensity Scores – David Stephens, McGill University

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