## Getting SMART about Developing Individualized, Adaptive Health Interventions

**University of Minnesota, NIMH Prevention Center (PI: Gerald August) - Wednesday, June 8, 9AM-5PM**

**Instructors:** Susan A. Murphy, PhD & Daniel Almirall, PhD (University of Michigan)

<table>
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<th>Module</th>
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| **INTRODUCTION**              | **Course Outline, Structure, and Introductions**  
  *Exercise:* Identify working groups of 2-3 investigators by scientific interests/discipline.                                                                                                                                                                                                                                                  |
| **MODULE 1**                  | **What are Adaptive Treatment Strategies?**  
  *• What are adaptive treatment strategies (ATS)? Give examples of ATSSs.*  
  *• Discuss why ATSSs are needed and how they inform clinical practice.*  
  *• Compare simple ATSSs versus more deeply tailored ATSSs.*                                                                                                                                                                                                                                    |
| **Q&A**                       | **Question, Answer, Discussion & Practice Exercise**  
  *Exercise:* Write down 2-3 simple ATSSs to address a chronic disorder in your field.                                                                                                                                                                                                               |
| **MODULE 2**                  | **What are Sequential Multiple Assignment Randomized Trials (SMARTs)?**  
  *• What are SMARTs? Why do we need SMARTs?*  
  *• Compare SMARTs to using a multiple-RCT approach for building ATSSs.*  
  *• Discuss SMART design principles. What are typical primary and secondary aims?*  
  *• Address misconception that SMARTs necessarily require large sample sizes.*                                                                                                                                                                                                                     |
| **Q&A**                       | **Question, Answer, Discussion & Practice Exercise**  
  *Exercise:* Using the 2-3 simple ATSSs written above, (a) construct a draft SMART design and (b) identify your primary scientific aim.                                                                                                                                                                                                 |
| **MODULE 3**                  | **Preparing for a SMART Study**  
  *• Data and/or preliminary studies that are most useful in planning a SMART*  
  *• Discuss piloting a SMART study to address feasibility concerns*                                                                                                                                                                                                                  |
| **Q&A**                       | **Question, Answer, Discussion & Practice Exercise**  
  *Exercise:* Write down data sources available to you that you could use as preliminary data for a SMART. If you would like to do a SMART pilot, what is the primary feasibility aim?                                                                                                                                                     |
| **LUNCH**                     | **Lunch Break**                                                                                                                                                                                                                                                                                                                                      |
| **MODULE 4**                  | **Primary Data Analytic Methods using Data Arising from a SMART**  
  *• Discuss common primary research questions in a SMART.*  
  *• Present SAS code and worked examples using simulated/fake data.*                                                                                                                                                                                                                       |
| **Q&A**                       | **Question, Answer, Discussion & Practice Exercise**  
  *Exercise:* Write down a primary research question of interest to you. What data analysis approach would you use to address this question?                                                                                                                                                  |
| **MODULE 5**                  | **Secondary Data Analytic Methods using Data Arising from a SMART**  
  *• Discuss common secondary research questions in a SMART.*  
  *• Present SAS code and worked examples using simulated/fake data.*                                                                                                                                                                                                                       |
| **Q&A**                       | **Question, Answer, Discussion & Practice Exercise**  
  *Exercise:* Write down a secondary research question of interest to you. What data analysis approach would you use to address this question?                                                                                                                                                  |
| **WRAP-UP**                   | **Wrap-up early to address final questions & to share contact information, etc.**                                                                                                                                                                                                       |