

**AGENDA: 4th Short Course R25DK099080 The Mathematical Sciences in Obesity**

| <b>Mon 6/26/2017 - Fri 6/30/2017</b>  |                                    | <b>Module identification color codes</b>  |
|---|------------------------------------|---|
| The University of Alabama at Birmingham<br>Executive Learning Center (ELC), 6th floor<br>1716 9 <sup>th</sup> Avenue South, SHPB 640<br>Birmingham AL 35233 |                                    | <b>Introduction to math method</b>  |
|   |                                    | <b>Application of method to obesity</b>   |
|   |                                    | <b>Hands-on interactive session</b>   |
|   |                                    | <b>Open problems<sup>†</sup></b>  |
| <b>Time</b>   | <b>Speaker</b>                     | <b>Topic</b>  |
| <b>Day 1 - Mon 6/26/2017</b>  |                                    |   |
| 8:00 - 8:30   | Diana Thomas, Montclair            | Registration  |
| 8:30 - 9:30   | David Allison/Andrew Brown, UAB    | Introductory remarks: A comedy of errors  |
| 9:30 – 10:30  | Steven Heymsfield, PBRC            | Overview of state of the field of obesity and mathematical sciences                                 |
| 10:30 – 11:30   | David Allison, UAB                 | Overview of funding approach at NIH and other federal granting agencies                             |
| <b>Lunch 11:30-12:45</b>  |                                    |   |
| <b>Module 1: Outcomes in Obesity Randomized Controlled Trials (RCTs)</b>  |                                    |   |
| 1:00-1:45   | Inmaculada (ChiChi) Aban, UAB      | Introduction to RCTs and their quantitative analysis  |
| 2:00-2:45   | Peng Li, UAB                       | Missing data in randomized clinical trials  |
| 3:00-4:00   | Michael Oakes, U of Minnesota      | Cluster Randomized Trials   |
| 4:00-5:30   | Moderated by Senior Researchers    | Roundtable Session <sup>††</sup>  |
| <b>Day 2 - Tue 6/27/2017</b>  |                                    |   |
| <b>Module 2: Modeling weight change using energy balance</b>  |                                    |   |
| 9:00 – 9:45   | Corey Gerving PhD, USMA West Point | Review of the laws of Thermodynamics  |
| 10:00 – 10:45   | Diana Thomas, Montclair            | Introduction of Energy Balance Models   |
| 11:00-11:30   | Corby Martin                       | Models delivered using smart phone technology   |
| <b>Lunch 11:30-12:45</b>  |                                    |   |
| <b>Module 3: Modeling Effects in Populations</b>  |                                    |   |
| 1:00-1:45   | Stephen Mennemeyer PhD, UAB        | Using Simulation to Estimate Economic Effects: Examples from Cost-Effectiveness of Obesity Programs |
| 2:00-2:45   | Shawn Bauldry PhD, Purdue          | Instrumental Variable Approaches  |
| 3:00-4:00   | Bruce Lee MD, Johns Hopkins        | Population Level Effects of Energy Balance Manipulations  |
| 4:00-5:30   | Moderated by Senior Researchers    | Roundtable Session <sup>††</sup>  |
| <b>Day 3 - Wed 6/28/2017</b>  |                                    |   |
| <b>Module 4: Modeling Obesity Interventions Through Networks</b>  |                                    |   |
| 9:00 - 09:45  | James Hill, UC Denver              | Open problems   |
| 10:00 – 10:45   | Ryan Miller, USMA                  | Introduction to Networks to Identify sub-Communities  |

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|---|---|---|
| 11:00 – 11:45   | Kayla de la Haye ,USC                       | Informing obesity interventions using networks                            |
| Lunch   |   |   |
| <b>Module 5: Modeling Behavioral Responses in Obesity</b> |   |   |
| 1:00-1:45   | Graham Thomas, Brown Univ                   | Application of models to monitor adherence                                |
| 2:00-2:45   | Rodney Sturdivant, Azusa Pacific University | Structural Equation Modeling in Obesity                                   |
| 2:45-3:45   | Paula-Chandler Laney, UAB                   | Open Problems   |
| 4:00-5:30   | Moderated by Senior Researchers             | Roundtable Session <sup>++</sup>  |
| <b>Day 4 - Thu 6/29/2017</b>                              |   |   |
| <b>Module 6: Sensor and Engineering Models in Obesity</b> |   |   |
| 9:00 – 9:45   | Edward, Sazonov, Alabama, Tuscaloosa        | Overview of the field   |
| 9:45 – 10:30  | Adam Hoover, Clemson Univ                   | Bite measurement methods and models                                       |
| 10:30 – 11:30   | Ken McLeod, Binghamton                      | Regulating RMR to maintain heat balance and body mass                     |
| <b>Lunch 11:30-12:45</b>                                  |   |   |
| <b>Module 7: Scaling Laws and Obesity</b>                 |   |   |
| 1:00-1:45   | Courtney Peterson, UAB                      | Overview of the field   |
| 2:00-2:45   | Dave Nelson, Univ S Alabama                 | Allometric Scaling & Whole-Animal Energy Balances                         |
| 3:00-4:00   | Steven Heymsfield, PBRC                     | Open Problems   |
| 4:15-5:30   | Moderated by Senior Researchers             | Roundtable Session <sup>++</sup><br>Preparation for student presentations |
| <b>Day 5 - Fri 6/30/20167</b>                             |   |   |
| <b>Module 8: Evolutionary Genetics</b>                    |   |   |
| 9:00 – 09:40  | David Meyre, McMaster Univ                  | Obesity, a collateral damage of evolution                                 |
| 9:40 – 10 AM  | Michael Sandel, Univ West Alabama: Q&A      |   |
| 10:00 – 10:40   | Yann Klimentidis, Univ Arizona              | Asking and answering evolutionary genetic questions about obesity         |
| 10:40 – 11 AM   | Michael Sandel, Univ West Alabama: Q&A      |   |
| 11:00 – 11:40   | Andrew Higginson, Univ Exeter               | Evaluating the logic of evolutionary explanations for obesity             |
| 11:40 – 12 PM   | Michael Sandel, Univ West Alabama: Q&A      |   |
| Lunch   |   |   |
| 1:00-5:30   | <b>Student Presentations</b>                |   |