**CASOS Summer Institute 2024**

**Day 0 – Set Up**  
**Sunday, 6/9/24**

<table>
<thead>
<tr>
<th>Times</th>
<th>Activity</th>
<th>How to participate</th>
</tr>
</thead>
</table>
| 1:00PM – 3:00PM US Eastern | *Assistance for participants; help with loading software and data on machines, Troubleshoot access issues | **Virtual Assistance:** Join Zoom Meeting  
**In-person Assistance:** GHC 6115  
Join Zoom Meeting  
[https://cmu.zoom.us/j/94813525417?pwd=JlNjOM0zl5FzJZty0WUnwOVV1Bsuka.1](https://cmu.zoom.us/j/94813525417?pwd=JlNjOM0zl5FzJZty0WUnwOVV1Bsuka.1)  
Meeting ID: 948 1352 5417  
Passcode: 159710 |

The focus of Sunday:

1) helping participants get the software onto their machines and loading properly.
2) helping the participants load their data into the tools.
3) provide some one-on-one support to participants having access issues.

*SUNDAY IS NOT A REQUIRED DAY FOR PARTICIPANTS. Sessions begin on Monday June 10, 2024 at 9am US Eastern.*

**Faculty & Technical Staff:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Name</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>Prof. Kathleen M. Carley</td>
<td>Prof. L. Richard Carley</td>
<td>Jon Storrick</td>
</tr>
<tr>
<td>Mihovil Bartulović, PhD</td>
<td>Jonathan Howard Morgan, PhD</td>
<td>Dawn Robertson</td>
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<tr>
<td>Samantha Clark</td>
<td>Mike Kowalchuck</td>
<td>Jeff Reminga</td>
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<tr>
<td>Stephen Dipple, PhD</td>
<td>Geoffrey Dobson, PhD</td>
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</table>

**CASOS Postdoc Researchers and Graduate Student TAs:**

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Scott Renshaw, PhD</td>
<td>Lynnette Ng</td>
<td>Jacob Shaha</td>
</tr>
<tr>
<td>Evan Williams</td>
<td>Luke Osterritter</td>
<td>Matthew Hicks</td>
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<tr>
<td>Peter Carragher</td>
<td>Samantha Phillips</td>
<td>Zhifei Jin</td>
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<tr>
<td>Catherine King</td>
<td>Daniele Bellutta</td>
<td>Ian Kloo</td>
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<tr>
<td>Jake Shin</td>
<td>Christine Lepird</td>
<td>Rebecca Marigliano</td>
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</table>
Links and participant info:

Online participants will be able to join sessions live via Zoom during instruction days at the link below. If you join remotely, members of the CASOS team will be online to moderate questions during live sessions.

Zoom Meeting for all Live Sessions:  
https://cmu.zoom.us/j/94813525417?pwd=JlNjOM0zl5FzJZty0WUnwOVV1Bsuka.1

Meeting ID: 948 1352 5417  
Passcode: 159710

*All sessions will be recorded and available to view by the following day. Videos of the sessions and case studies will be available for all participants through August 31, 2024.

Video playlist on Panopto:  
https://scs.hosted.panopto.com/Panopto/Pages/Sessions/List.aspx?folderID=0ab64b69-2418-41f8-982a-b181011ea141

In-Person Participants will meet each day in Gates/Hillman Center (GHC), 4902 Forbes Ave., Pittsburgh, PA, Room 6115 on the 6th floor. Get an interactive Carnegie Mellon University campus map, https://www.cmu.edu/visit/maps-parking-transportation.html. Breakfast and lunch will be provided for in-person attendees throughout instruction days but not on Sundays. Breakfast will be available an hour prior to the start of each instruction day.

All Participants will have access to software, data, slides from the presentations, posters, and reading list publications in the Summer Institute Box Folder. You will be able to access the folder with the email you registered with.

Link for Summer Institute Box Folder:  
https://cmu.box.com/s/4ljcr73m1f1eoi4vymucsaflw5wel1tq

Blue Titles in the agenda indicate a hands on presentation.
LIVE INSTRUCTION SCHEDULE
All Times US Eastern

<table>
<thead>
<tr>
<th>Time</th>
<th>Lecture/Presentation</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00am – 9:10am</td>
<td>Welcome</td>
<td>Prof. Kathleen M. Carley</td>
</tr>
<tr>
<td>9:10am – 11:00am</td>
<td>Dynamic Network Analysis Overview &amp; Basics</td>
<td>Prof. Kathleen M. Carley (Lecture)</td>
</tr>
<tr>
<td>11:00am – 12:00pm</td>
<td>DNA - key metrics</td>
<td>Prof. Kathleen M. Carley (Lecture)</td>
</tr>
<tr>
<td></td>
<td>LUNCH BREAK</td>
<td></td>
</tr>
<tr>
<td>12:00pm – 1:00pm</td>
<td>ORA – Basic Interface, Import CSV file, Key Entity Report, Citation import, Citation report</td>
<td>Jeff Reminga (Hands On) (Matthew Hicks)</td>
</tr>
<tr>
<td>1:00pm – 2:00pm</td>
<td>ORA – Visualizer Basics</td>
<td>Jon Storrick (Hands On) (Lynnette Ng)</td>
</tr>
<tr>
<td>2:00pm – 3:00pm</td>
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<tr>
<td></td>
<td>BREAK</td>
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<tr>
<td>3:00pm – 3:15pm</td>
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<tr>
<td>3:15pm – 4:15pm</td>
<td>Groups &amp; Topology</td>
<td>Prof. Kathleen M. Carley (Lecture)</td>
</tr>
<tr>
<td>4:15pm – 5:15pm</td>
<td>ORA – Reports, Group Reports</td>
<td>Jeff Reminga (Hands On) (Daniele Bellutta)</td>
</tr>
<tr>
<td>5:30pm – 7:30pm</td>
<td>Welcome Reception</td>
<td>All in-person participants and CASOS Center faculty, students and staff</td>
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<td>GHC Commons, 6th Floor</td>
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<tr>
<td>Time</td>
<td>Lecture/Presentation</td>
<td>Instructor</td>
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<tr>
<td>9:00am – 9:10am</td>
<td>Where does the data come from?</td>
<td>Prof. Kathleen M. Carley (Lecture)</td>
</tr>
<tr>
<td>9:10am – 10:15am</td>
<td>Text to Networks &amp; Semantic Networks</td>
<td>Prof. Kathleen M. Carley (Lecture)</td>
</tr>
<tr>
<td>10:15am – 10:30am</td>
<td><strong>BREAK</strong></td>
<td></td>
</tr>
<tr>
<td>10:30am – 11:30am</td>
<td>NetMapper and ORA</td>
<td>Dawn Robertson (Hands On) (Christine Lepird)</td>
</tr>
<tr>
<td>11:30am – 12:00pm</td>
<td>Edit Data, Create Thesauri or Delete List, Apply functions to Many Files</td>
<td>Jeff Reminga (Hands On) (Samantha Phillips)</td>
</tr>
<tr>
<td>12:00pm – 1:00pm</td>
<td><strong>LUNCH BREAK</strong></td>
<td></td>
</tr>
<tr>
<td>1:00pm – 1:45pm</td>
<td>Dynamic Networks for Social Media</td>
<td>Prof. Kathleen M. Carley (Lecture)</td>
</tr>
<tr>
<td>1:45pm-2:30pm</td>
<td>BEND &amp; Community Assessment</td>
<td>Prof. Kathleen M. Carley (Lecture)</td>
</tr>
<tr>
<td>2:30pm- 3:15pm</td>
<td>Stance Detection</td>
<td>Daniele Bellutta (Hands On) (Rebecca Marigliano)</td>
</tr>
<tr>
<td>3:15pm – 3:30pm</td>
<td><strong>BREAK</strong></td>
<td></td>
</tr>
<tr>
<td>3:30pm – 4:15pm</td>
<td>BEND Tutorial</td>
<td>Matthew Hicks (Hands On) (Jake Shaha)</td>
</tr>
<tr>
<td>4:15pm – 4:45pm</td>
<td>Semantic Report</td>
<td>Samantha Phillips (Hands On) (Lynnette Ng)</td>
</tr>
<tr>
<td>4:45pm – 5:15pm</td>
<td>Topic Modeling in ORA</td>
<td>Daniele Bellutta (Hands On) (Jake Shaha)</td>
</tr>
<tr>
<td>5:15pm – 6:30pm</td>
<td>Q&amp;A Sessions/Help with Software</td>
<td>In person Participants and TA’s – by appointment</td>
</tr>
<tr>
<td>Time</td>
<td>Lecture/Presentation</td>
<td>Instructor</td>
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<tr>
<td>9:00am – 10:15am</td>
<td>Network Measures, Structure, and Folding</td>
<td>Jake Shaha (Hands On) (Jake Shin)</td>
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<tr>
<td>10:15am – 10:30am</td>
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</tr>
<tr>
<td>10:30 – 11:30am</td>
<td>Network Comparison and Prediction</td>
<td>Catherine King (Hands On) (Zhifei Jin)</td>
</tr>
<tr>
<td>11:30am – 12:00pm</td>
<td>Handling Large Data Sets</td>
<td>Jeff Reminga (Hands On) (Lynnette Ng)</td>
</tr>
<tr>
<td>12:00pm – 1:00pm</td>
<td></td>
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</tr>
<tr>
<td>1:00pm – 2:00pm</td>
<td>Advanced Visualization, Big Data</td>
<td>Jon Storrick (Hands On) (Lynnette Ng)</td>
</tr>
<tr>
<td>2:00pm – 3:00pm</td>
<td>Visualizing Change in Networks</td>
<td>Jon Storrick (Hands On) (Daniele Bellutta)</td>
</tr>
<tr>
<td>3:00pm – 3:15pm</td>
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<td></td>
</tr>
<tr>
<td>3:15pm – 4:00pm</td>
<td>MRQAP and Regression, Visualize Distributions</td>
<td>Jeff Reminga (Hands On) (Rebecca Marigliano)</td>
</tr>
<tr>
<td>4:00pm – 4:30pm</td>
<td>Clustering - Unimodal, to Cluster Ensembling, to Multi-Modal Clustering</td>
<td>Evan Williams (Hands On) (Samantha Phillips)</td>
</tr>
<tr>
<td>4:30pm – 5:00pm</td>
<td>Polarization</td>
<td>Samantha Phillips (Hands On) (Zhifei Jin)</td>
</tr>
<tr>
<td>5:00pm-5:30pm</td>
<td>Triad Census</td>
<td>Luke Osterritter (Lecture/Hands On) (Jake Shin)</td>
</tr>
<tr>
<td>5:30pm – 6:30pm</td>
<td>Q&amp;A Sessions</td>
<td>In person Participants and TA’s – by appointment</td>
</tr>
</tbody>
</table>
# CASOS Summer Institute 2024
## Day 4 – Dynamics, Geo-Spatial & Social Media
### Thursday, 6/13/24

<table>
<thead>
<tr>
<th>Time/Duration</th>
<th>What</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00am – 10:15am</td>
<td>Dynamics: Reasoning About Networks Over Time</td>
<td>Prof. L. Richard Carley (Lecture)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Daniele Bellutta)</td>
</tr>
<tr>
<td>10:15am – 10:30am</td>
<td><strong>BREAK</strong></td>
<td></td>
</tr>
<tr>
<td>10:30am – 11:00am</td>
<td>Fourier Analysis, change detection <strong>Follow along</strong></td>
<td>Prof. L. Richard Carley (Lecture)</td>
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<tr>
<td></td>
<td></td>
<td>(Jake Shaha)</td>
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<tr>
<td>11:00am – 11:30am</td>
<td>Geo-temporal Networks and Visualization</td>
<td>Prof. L. Richard Carley (Lecture)</td>
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<td></td>
<td>(Rebecca Marigliano)</td>
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<tr>
<td>11:30am – 12:00pm</td>
<td><strong>Geo-Spatial Visualization</strong></td>
<td>Jon Storrick (Hands On)</td>
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<td></td>
<td></td>
<td>(Rebecca Marigliano)</td>
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<tr>
<td>12:00pm – 1:00pm</td>
<td><strong>LUNCH BREAK</strong></td>
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<tr>
<td>1:00pm – 1:30pm</td>
<td>Trails and Networks: From Trails to Networks and Higher-order Networks</td>
<td>Mihovil Bartulović, PhD (Jake Shaha)</td>
</tr>
<tr>
<td>1:30pm – 2:00pm</td>
<td>Trails and Networks: Loom; Network representation of Trails</td>
<td>Mihovil Bartulović, PhD (Jake Shaha)</td>
</tr>
<tr>
<td>2:00pm – 2:45pm</td>
<td>Social Influence Theory</td>
<td>Prof. Kathleen M. Carley (Lecture)</td>
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<tr>
<td></td>
<td></td>
<td>(Samantha Phillips)</td>
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<tr>
<td>2:45pm – 3:00pm</td>
<td><strong>BREAK</strong></td>
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<tr>
<td>3:00pm – 3:30pm</td>
<td>Ego Network Reports</td>
<td>Jeff Reminga (Hands On)</td>
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<td></td>
<td>(Daniele Bellutta)</td>
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<tr>
<td>3:30pm – 4:00pm</td>
<td>Social Media Importers and Reports (Twitter, Telegram, Reddit)</td>
<td>Jeff Reminga (Hands On/Technical)</td>
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<td></td>
<td>(Ian Kloo)</td>
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<tr>
<td>4:00pm – 4:30pm</td>
<td>Twitter De-identification and Microvisualizations</td>
<td>Jon Storrick (Hands On)</td>
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<td></td>
<td>(Rebecca Marigliano)</td>
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<tr>
<td>4:30pm – 6:00pm</td>
<td>Q&amp;A Sessions</td>
<td>In person Participants and TA’s – by appointment</td>
</tr>
</tbody>
</table>
### LIVE INSTRUCTION SCHEDULE

All Times US Eastern

<table>
<thead>
<tr>
<th>Time</th>
<th>Lecture/Presentation</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>9:30am – 10:00am</td>
<td><strong>Micro-Simulations in ORA</strong></td>
<td>Matthew Hicks (Hands On)</td>
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<td></td>
<td>(Rebecca Marigliano)</td>
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<tr>
<td>10:00am – 10:30am</td>
<td><strong>Immediate Impact Analysis</strong></td>
<td>Peter Carragher (Hands On)</td>
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<td>(Ian Kloo)</td>
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<tr>
<td></td>
<td><strong>BREAK</strong></td>
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<tr>
<td>10:30am – 10:45am</td>
<td><strong>Agent Based Modeling - Intro</strong></td>
<td>Geoffrey Dobson, PhD</td>
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<td></td>
<td></td>
<td>(Lynnette Ng)</td>
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<tr>
<td>10:45am – 11:30am</td>
<td><strong>Cyberfit and Red Cyber</strong></td>
<td>Geoffrey Dobson, PhD</td>
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<td>(Jake Shin)</td>
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<tr>
<td>11:30am – 12:00pm</td>
<td><strong>Construct</strong></td>
<td>Stephen Dipple, PhD</td>
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<td>(Lynnette Ng)</td>
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<tr>
<td>12:00pm – 1:00pm</td>
<td><strong>Case Study: Learning Within Organizations using Construct</strong></td>
<td>Stephen Dipple, PhD</td>
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<td>(Lynnette Ng)</td>
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<tr>
<td>1:00pm – 1:45pm</td>
<td><strong>OSIRIS</strong></td>
<td>Jake Shin (Hands On)</td>
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<td></td>
<td>(Peter Carragher)</td>
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<tr>
<td>1:45pm – 2:15pm</td>
<td><strong>Virtual Experiments</strong></td>
<td>Luke Osterritter (Hands On)</td>
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<td></td>
<td>(Peter Carragher)</td>
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<tr>
<td>2:15pm – 2:45pm</td>
<td><strong>Artemis</strong></td>
<td>Mihovil Bartulović, PhD</td>
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<tr>
<td>2:45pm – 3:00pm</td>
<td><strong>Q&amp;A Sessions</strong></td>
<td>In person Participants and TA’s – by appointment</td>
</tr>
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</table>
## LIVE INSTRUCTION SCHEDULE

### All Times US Eastern

<table>
<thead>
<tr>
<th>Time</th>
<th>Lecture/Presentation</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>9:30am – 10:15am</td>
<td>Machine Learning Models in ORA</td>
<td>Mike Kowalchuck (Hands On) –</td>
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<tr>
<td></td>
<td><strong>BREAK</strong></td>
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<tr>
<td>10:15am - 10:30am</td>
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<tr>
<td>10:30am – 11:00am</td>
<td>AESOP</td>
<td>Matthew Hicks (Hands On) (Rebecca Marigliano)</td>
</tr>
<tr>
<td>11:00am – 11:30am</td>
<td>Generating Synthetic Networks in ORA</td>
<td>Rebecca Marigliano (Lecture) (Matthew Hicks)</td>
</tr>
<tr>
<td>11:30am – 12:00pm</td>
<td>Generating Synthetic Social Media Data</td>
<td>Ian Kloo (Lecture) (Rebecca Marigliano)</td>
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<td></td>
<td><strong>LUNCH BREAK</strong></td>
<td></td>
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<tr>
<td>12:00pm – 1:00pm</td>
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<tr>
<td>1:00pm – 2:00pm</td>
<td>Finding Trolls and Hate Speech</td>
<td>Lynnette Ng (Hands On) (Matthew Hicks)</td>
</tr>
<tr>
<td>2:00pm – 2:30pm</td>
<td>Finding Bots</td>
<td>Lynnette Ng (Hands On) (Peter Carragher)</td>
</tr>
<tr>
<td>2:30pm – 3:00pm</td>
<td>Webgraphs, Data Voids, and Dredge Words</td>
<td>Evan Williams (Peter Carragher)</td>
</tr>
<tr>
<td>3:00pm – 3:30pm</td>
<td>Pink Slime</td>
<td>Christine Lepird (Catherine King)</td>
</tr>
<tr>
<td>3:30pm – 5:00pm</td>
<td>Q&amp;A Sessions</td>
<td>In person Participants and TA’s – by appointment</td>
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## Q&A Sessions

### In person Participants and TA’s – by appointment
**CASOS Summer Institute 2024**

Day 7 – One on One
Extra Sunday 6/16/24

<table>
<thead>
<tr>
<th><em>By appointment</em></th>
<th>Instructor</th>
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</table>
| Break-out sessions on tools and individualized training (in-person participants only) | All CASOS TA’s  
GHC 6115 |

**During the week we will be grouping together in-person participants with members from CASOS. This day is optional and for anyone who needs further instruction. Timings will be established with TA’s and participants**