April 9, 2019

# Course Outline

## Lecture 1 (April 16)

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| --- | --- | --- | --- | --- |
| Start | Activity | Leader | Exercises | Notes |
| 18:00 | Students check‑in |  |  |  |
| 18:30 | Welcome, introduction | Mike Kretzler |  |  |
| 18:40 | Maps | Dan Miller | Find map points and features |  |
| 19:25 | Declination | Dawn Rorvik | Set declination |  |
| 19:40 | break |  |  |  |
| 19:50 | GPS heads‑up | Mike Kretzler |  |  |
| 19:55 | Compass | Devin Humbert | Compass and maps together |  |
| 20:40 | Closing | Mike Kretzler |  |  |

## Lecture 2 (April 18)

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| --- | --- | --- | --- | --- |
| Start | Activity | Leader | Exercises | Notes |
| 18:00 | Students check-in |  |  |  |
| 18:30 | Welcome exercise | Mike Kretzler | Compass and letters |  |
| 18:40 | Terrain Association | Mike Kretzler |  |  |
| 19:00 | Coordinate systems, UTM | Mike Kretzler | Find UTM point on map |  |
| 19:30 | break |  |  |  |
| 19:40 | GPS intro | Julie Dasso |  |  |
| 20:10 | Route Planning | Doug Hansen | Plan a route |  |
| 21:50 | Closing | Mike Kretzler |  |  |

## Field Days (April 20 and April 212)

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| --- | --- |
| Start | Activity |
| 07:30 | Volunteers arrive, complete setup |
| 08:00 | Students check-in, orientation |
| 08:30 | Students measure pace and walk to exercises |
| 09:00 | Field exercises with lunch as needed |
| 16:00 | All gather for debrief and photos |

## Field Topics

### Pace Length

Along the way into the site, students will measure their paces over a 100’ course.

### Navigate around an obstacle

This topic is usually set up on the west side of the open field and directs students around brush or other obstacles, usually where you can’t see the other side. The purpose of this is to understand the offset, like detouring to an adjacent block in a street grid, but using the compass to get the 90° angles right. The only pacing needed is in leaving and returning to the given bearing line. This is also an opportunity to develop the leapfrog teamwork needed on the long nav.

### Terrain association and orientation

This topic is usually set up in the middle of the open field and offers students the chance to identify map features with real world features, including hills, power lines, water courses, and roads. There are a series of exercises to go through. Encourage students to use their GPS maps, too, which may have useful insights.

### Triangulation (“line and point position”)

This topic is usually set up in the middle of the open field and provides students the chance to read their maps and use their compasses to find where they are in the world. Encourage students to use their GPS to confirm their work on the paper map.

### Compass practice course (“open field”)

This topic is set up on the east part of the field, starting on the berm running north-south through the middle of the field, and takes students through a set of story problems that help them get practice using their compasses, following bearings, and estimating distance. This is individual work, but teams should start and end this together.

### Long navigation in teams

This gives students the opportunity to work in teams as they follow a bearing through rough terrain to a finish line. The starting points are along a logging road branching from the powerline road at the top of the hill, south of the open field. The ending points are along the north edge of the open field. Students are encouraged to run a GPS track during their navigation and review that at the end.

## Final test and debrief (May 6, tentative)

Volunteers gather to score the final tests, which are delivered by May 5, and to review how the course went and identify changes for next year.

# Volunteer Roles

## Instructional Assistants

A volunteer is assigned to each table of four to seven students to watch them for understanding and assist them in completing the exercises. Assistants should encourage team work and peer-teaching by other members of the table. Assistants should encourage active engagement with the material, rather than providing answers to students’ questions.

## Administrative

This includes some of the most important activities, including setting up the room, checking in students, collecting homework, distributing materials, scoring the homework, encouraging prompt return from break, and clearing the tables at the end of the night.

## Lecture Instructors

This role builds and delivers instruction, through lectures and hands-on exercises, to the students. They are designated above.

## Field Instructors

Volunteers are assigned to a station, where student teams gather to complete exercises. Students must complete all exercises successfully. Volunteers are responsible for setting up the exercise, watching students for understanding, assisting them in completing the exercises, and tracking which teams have completed their exercise. Volunteers should encourage team work and peer-teaching. Finally, volunteers are responsible for the safety and well-being of the students.