Syllabus

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1 Overview
ESM 263 is a one-quarter introduction to geographic information systems (GIS). The course is intended for MESM students who need to acquire a working knowledge of GIS theory and practice in a single quarter.

2 Who

2.1 Instructor: Niklas Griessbaum
Office hours:
  • By appointment griessbaum@ucsb.edu. If you request an appointment, please let me know if I can announce it on Slack and let your classmates crash it. (You get first dibs on questions...)
Tuesdays after lab from 14:00 to 15:30 in the GIS lab (BH 3035)
• Wednesdays from 10:00 to 11:30 in the GIS lab (BH 3035)
• If everything else fails: Drop in at my office in (BH 3001). I should be around Mondays through Wednesdays. Please mind that I have very busy officemates.

2.2 TA: Sean Reid
Office hours (tentatively):
• Mondays at 11:00 in the GIS lab (BH 3035)
• Wednesdays at 13:00 in the GIS lab (BH 3035)

3 When & Where

<table>
<thead>
<tr>
<th>Session</th>
<th>Day</th>
<th>Time</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>lecture</td>
<td>Mon</td>
<td>15:30–16:45</td>
<td>BH 1414</td>
</tr>
<tr>
<td>lab 1</td>
<td>Tue</td>
<td>12:00–13:50</td>
<td>BH 3035</td>
</tr>
<tr>
<td>lab 2</td>
<td>Wed</td>
<td>15:30–17:20</td>
<td>BH 3035</td>
</tr>
</tbody>
</table>

• The labs are identical. Try to attend the lab you enrolled in—otherwise, there may not be a place for you to sit. However, you’re welcome to connect to any session (lab or lecture) offered via Zoom.
• We’ll use Zoom for recording class sessions, and, when necessary, to enable remote participation.
• The lecture on Martin Luther King Jr. Day (2023-01-16) and President’s day (2023-02-20) will only be offered remotely via zoom. Those lectures will be recorded for you to watch at your convenience. (I'll record them at usual lecture time, and you're welcome to connect then, but it's certainly not required.)
• Recording: All lectures will be recorded. Portions of lab sessions may be recorded as well, if the content is amenable (e.g., demonstrations in response to student questions).
• Remote participation: Class sessions specifically designated as remote will always be recorded, and will support remote participation. During these sessions you’ll able to ask questions, share your screen, etc.
• You’re welcome to connect to a course Zoom meeting when it’s recording an in-person session; however, we won’t be supporting the same level of interaction as during a remote session—we may not be monitoring the chat, or noticing when you raise your hand.
• We’ll use the same Zoom meeting throughout the course. I will publish the link on the course GauchoSpace page (only accessible if you’re enrolled) for connection information.
• Recordings will be posted to the course Box folder shortly after they’re acquired.
4 QGIS

This year (Winter 2023) we’re teaching ESM 263 using QGIS, a free, open-source GIS application. QGIS runs pretty much identically on macOS and Windows, and is far less resource-intensive than ArcGIS.

QGIS has a fairly rapid development cycle—a new version will almost certainly appear while the course is in progress. To keep things sane, you might wish to stick with version 3.22.13 (Białowieża)

QGIS is installed on all of the “student” computers at Bren, so you can do all of your coursework on a Bren computer if you like. However, it’s quite nice to able to do GIS-y stuff whenever the spirit moves you, so we encourage you to install QGIS on your own computer—see the Week 1 lab instructions for details.

More about QGIS at:

- QGIS users page
- QGIS 3.22 documentation (you might want bookmark this…)

5 Online resources

- home page: You’re looking at it.

- Slack workspace:
  - for (almost) everything we would’ve used email for:
  - You: ask (and help each other with) questions about course content.
  - We: answer questions, post changes to deadlines and assignments, etc
  - invite link

- Box folder: stuff for you to view or download that:
  - is too big to upload to the course’s GitHub-hosted website; and/or
  - needs to be restricted to UCSB users (e.g., Zoom videos with students in them)
  - See the README file for an explanation of how the Box folder is laid out.

- GauchoSpace:
  - Stuff that need to be restricted to those enrolled in the course:
  - Zoom connection information
  - Assignment submission
  - Occasional email announcements

- Gradescope (TBD)
  - to handle grading
• miscellaneous reference material:
  – stuff we mention in class that’s not specific to a particular week’s topic

6 Textbooks

• required:

• optional:
  * This is good to have if you’re really fired up about making pretty maps.

7 Syllabus

<table>
<thead>
<tr>
<th>week</th>
<th>dates</th>
<th>topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2023-01-09 to 2023-01-13</td>
<td>Introduction to GIS &amp; cartography</td>
</tr>
<tr>
<td>2</td>
<td>2023-01-16 to 2023-01-20</td>
<td>Coordinate systems and map projections</td>
</tr>
<tr>
<td>3</td>
<td>2023-01-23 to 2023-01-27</td>
<td>Vector data</td>
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<tr>
<td>4</td>
<td>2023-01-30 to 2023-02-03</td>
<td>Tabular data</td>
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<tr>
<td>5</td>
<td>2023-02-06 to 2023-02-10</td>
<td>Raster data</td>
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<tr>
<td>6</td>
<td>2023-02-13 to 2023-02-17</td>
<td>GIS models</td>
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<tr>
<td>7</td>
<td>2023-02-20 to 2023-02-24</td>
<td>Terrain and watershed analysis</td>
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<tr>
<td>8</td>
<td>2023-02-27 to 2023-03-03</td>
<td>GIS data: sources and capture</td>
</tr>
<tr>
<td>9</td>
<td>2023-03-06 to 2023-03-10</td>
<td>Programming GIS</td>
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<tr>
<td>10</td>
<td>2023-03-13 to 2023-03-17</td>
<td>QGIS on the web</td>
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8 Assignments

• Grading criteria
• All assignments should be submitted to GauchoSpace by midnight on the due date.

<table>
<thead>
<tr>
<th>due</th>
<th>assignment</th>
<th>feedback</th>
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<tbody>
<tr>
<td>Wed 2023-01-18</td>
<td>Cartography</td>
<td>TA</td>
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<tr>
<td>Wed 2023-02-08</td>
<td>Sea level rise</td>
<td>TA</td>
</tr>
<tr>
<td>Wed 2023-03-01</td>
<td>Site suitability for wind power</td>
<td>TA</td>
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<tr>
<td>due</td>
<td>assignment</td>
<td>feedback</td>
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<tr>
<td>Wed 2023-03-22</td>
<td>Multicriteria analysis for conservation</td>
<td>TA</td>
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