Instructor: Anthony Mendes. Call me Tony. If uncomfortable using first names, call me Dr. Mendes.

Email: aamendes@calpoly.edu

Office hours: Office hours are held in Building 25, Room 202. Office hours are at

- 11:10–1:00 Mondays,
- 3:10–4:00 Tuesdays,
- 12:10–1:00 Thursdays.

Please come and visit me to talk about mathematics or anything else! I’d love to see you there.

Website: The web site www.calpoly.edu/~aamendes/437.html contains our textbook, assignments, readings, and code. It will be updated frequently.

Prerequisites: Required prerequisites are an introduction to mathematical proof (Math 248) and elementary linear algebra (either Math 206 or Math 244). This course makes free use of concepts from calculus and differential equations, matrix algebra, and probability. You will write proofs.

Text and content: Our text is Game Theory by Thomas S. Ferguson. This text and auxiliary notes are on the website. This is a rough outline of topics and corresponding references:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two person zero sum finite games</td>
<td>Part II pages 3–33, Minimax theorem notes</td>
</tr>
<tr>
<td>Linear programming</td>
<td>Linear Prog. pages 3–28, Part II pages 37–45</td>
</tr>
<tr>
<td>Interval games</td>
<td>Interval games notes</td>
</tr>
<tr>
<td>Iterated games</td>
<td>Part II pages 58–72</td>
</tr>
<tr>
<td>Utility theory</td>
<td>Appendix pages 1–4</td>
</tr>
<tr>
<td>Two person general sum games</td>
<td>Part III pages 2–15</td>
</tr>
<tr>
<td>Nash bargaining and cooperation</td>
<td>Part III pages 25–36</td>
</tr>
<tr>
<td>$n$ person games</td>
<td>Part IV pages 2–6 and 12–21</td>
</tr>
</tbody>
</table>

Reading the text is recommended—lectures are designed to complement, not copy, the text.

Grading: Letter grades are based on assignments, midterm 1, midterm 2, and a final exam. Each of these activities account for 25% of the total grade. Letter grades are given such that

- 93—100 earn an A,
- 88—89 earn a B+,
- 78—79 earn a C+,
- 68—69 earn a D+,
- 90—92 earn an A−,
- 83—87 earn a B,
- 73—77 earn a C,
- 63—67 earn a D,
- 80—82 earn a B−,
- 70—72 earn a C−,
- 60—62 earn a D−.

If you are ever concerned about your grade, please visit me! It often is not as dire as one may think.

Assignments: Assignments are important and high quality work is expected. You will not receive credit for an exercise unless careful explanations are included. Working in teams is encouraged, but everyone is individually responsible for turning in an assignment. Computer use is encouraged.

Dates: Midterm Exams: Friday, April 28 and Friday, May 26.
Final Exam: The final exam is in our classroom on Monday, June 11 at 1:10.
Game Theory Assignment Guidelines

Completing an assignment is a two step process. The first step is discovering the solutions. The second step is clearly and concisely explaining those solutions. You will be graded on both steps.

- A quick way to determine the caliber of your exposition is to have a classmate read what you have written. If he fully understands a solution you have written after reading your solution just once, then you have achieved the ultimate goal in technical writing.

- Short but complete answers are best, provided full sentences and appropriate punctuation is used.

- Omit all scratch work and algebra steps. Your audience understands calculus and matrix algebra but does not understand game theory. For example, if you need to find the inverse of

\[
M = \begin{bmatrix} 1 & 1 \\ 3 & 4 \end{bmatrix},
\]

then do not explicitly show how \( M^{-1} \) is calculated. Simply say “The inverse to \( M \) is \( \begin{bmatrix} 4 & -1 \\ -3 & 1 \end{bmatrix} \).” Computers and calculators can help with these tasks.

- Neatness counts! Do not show me scribbles or pages with writing that has been erased and rewritten many times over. I prefer neat handwriting over awkward typesetting.

Work with your classmates on the assignments. Visit me and I’d love to talk about them with you!