Course description:
The purpose of this course is to introduce students to the fundamental design issues in wireless and wired local and metropolitan area networks, explain the state-of-the-art solutions proposed and deployed in the field by using latest standards and protocols as examples, and discuss the trends in the wireless/wired LAN/MAN arena.

Grading policy:
Overall assessment for this course is based on homework and two exams.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td>Midterm</td>
<td>45%</td>
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<tr>
<td>Final</td>
<td>45%</td>
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The suggested projects are intended to let the students further understand the topics and will not be counted in the grades.

Textbook:
Since most of the materials covered in this course are state-of-the-art protocols and standards in the corresponding area, there is no single textbook which can span the whole scope of this course. Thus, no specific textbook is mandated in this course. Instead, pertinent papers and articles will be listed in the "reference" section at the end of each lecture notes.

Homework:
The primary purpose of assigning homework is to get students familiar with the course materials and prepare for the exam. Therefore, please complete the homework independently and your solution could be different or even better than the one provided on the website. **Homework is due the second week after the lecture (for example, for week one, the homework is due before week 3).** Please use the dropbox to submit your homework. Homework send via email will not be counted.

Pedagogy:
**Please finish the course slides on a per week basis. If you have any questions, please contact TA for clarification.**

Tentative Schedule:

**Week 1 (Sep 7 ~ Sep 10): Introduction and Review**

**Part I: Wireless Networks**

**Week 2: (Sep 13 ~ May 17) Wireless local area networks (WLAN)**

IEEE 802.11, Protocol stack, Network architecture, Basic medium access control protocol (e.g., DCF and PCF)

**Week 3: (Sep 20 ~ Sep 24) Wireless local area networks (WLAN)**

High throughput WLAN (IEEE 802.11n), Quality of service support (IEEE 802.11e), Security enhancements (IEEE 802.11i)

**Week 4: (Sep 27 ~ Oct 1) Wireless local area networks (WLAN)**

Seamless roaming (IEEE 802.11r), Voice over IP over WiFi (VoFi)

**Week 5: (Oct 4 ~ Oct 8) Ad hoc networking**

IEEE 802.11 ad hoc mode, Ad hoc routing protocols


Bluetooth (IEEE 802.15.1), Ultra-wide band (IEEE 802.15.3), Wireless sensor networks (IEEE 802.15.4, and ZigBee)
Week 7: (Oct 18 ~ Oct 22) Review
Week 8: (Oct 25 ~ Oct 29) Midterm
  Time: Oct 28, Thursday, 4:00pm - 6:00 pm
  Location: LC 009
  Open books, open notes
If you cannot come to poly during the above time for test, you should fill the proctor requesting form to arrange your exam on a different date or location.
http://www.poly.edu/epoly_old/schedule/
The materials taught up to Week 6 will be covered in the midterm.
Week 9: (Nov 1 ~ Nov 5) Wireless metropolitan area networks (WMAN)
  IEEE 802.16 (WiMax)
Week 10: (Nov 8 ~ Nov 12) Third generation cellular network (3G)
  Part II: Wireline Network
Week 11: (Nov 15 ~ Nov 19) Local area networks (Ethernet)
Week 12: (Nov 22 ~ Nov 26)
  Ethernet basics, Virtual LAN (VLAN), Fast Ethernet, Gigabit Ethernet
Week 13: (Nov 29 ~ Dec 3) Emerging Ethernet technologies
  Residential Ethernet, Power over Ethernet, etc
Week 14: (Dec 6 ~ Dec 10) Final
  Time: Dec 9, Thursday, 4:00pm - 6:00pm
  Location: LC 009
  Open books, open notes
  If you cannot come to poly during the above time for test, you should fill the proctor requesting form to arrange your exam on a different date or location.
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The final will be cumulative and it includes everything.