

**ECSE-6961: Fundamentals of Wireless Broadband Networks**  
**Spring 2007 Tentative Schedule:**

**Note: Exam dates: Feb 23<sup>rd</sup> 2007, March 30<sup>th</sup> 2007, May 1<sup>st</sup> 2007**

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**JANUARY:**

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**1/2 January 16<sup>th</sup>/Jan 19<sup>th</sup>, 2007**

Lecture 1: Introduction to Wireless Broadband Networks (**T/V:** Chap 1, **G:** Chap 1)

Lecture 2: Introduction to Wireless Broadband Networks (**T/V:** Chap 1, **G:** Chap 1)

**3/4 January 23<sup>rd</sup>/Jan 26<sup>th</sup>, 2007**

Lecture 3: The Wireless Channel (**T/V:** Chap 2, **G:** Chap 2,3; handout)

Lecture 4: The Wireless Channel (**T/V:** Chap 2, **G:** Chap 2,3; handout)

**Jan 30<sup>th</sup> (see below)**

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**FEBRUARY:**

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**5/6 Jan 30/Feb 2nd, 2007**

*[Instructor away: guest lectures by Prof. Ken Connor, Prof. Alhussein Abouzeid (details to be announced)]*

Lecture 5: Prof. Ken Connor, RF Propagation, Electromagnetics, Antenna Design etc

Lecture 6: Prof. Alhussein Abouzeid, Capacity of Wireless Channels, (**T/V:** Chap 5, Appendix B, **G:** Chap 4)

**7/8 February 6<sup>th</sup>/Feb 9<sup>th</sup>, 2007**

Lecture 7: The Wireless Channel ... Contd (**T/V:** Chap 2, **G:** Chap 2,3; handout)

Lecture 8: Capacity of Wireless Channels (contd..), (**T/V:** Chap 5, Appendix B, **G:** Chap 4)

**9/10 February 13<sup>th</sup>/Feb 16<sup>th</sup>, 2007**

Lecture 9: Point-to-Point Communication: Modulation, Coding, Detection, Diversity  
(**T/V**: Chap 3, Appendix A, **G**: Chap 5,6,7,8,9,11)

Lecture 10: Point-to-Point Communication: Modulation, Coding, Detection, Diversity  
(**T/V**: Chap 3, Appendix A, **G**: Chap 5,6,7,8,9,11)

**11 February 20<sup>th</sup>/Feb 23<sup>rd</sup>, 2007**

**NOTE: February 20** Follow Monday class schedule. No class.

Lecture 11: **EXAM 1 (Feb 23<sup>rd</sup>)**

**Feb 27<sup>th</sup> (see below)**

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**MARCH:**  
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**12/13 February 27<sup>th</sup>/March 2<sup>nd</sup>, 2007**

Lecture 12: Point-to-Point Communication: Modulation, Coding, Detection, Diversity  
(**T/V**: Chap 3, Appendix A, **G**: Chap 5,6,7,8,9,11)

Lecture 13: Point-to-Point Communication: Modulation, Coding, Detection, Diversity  
(**T/V**: Chap 3, Appendix A, **G**: Chap 5,6,7,8,9,11)

*{March 5-9 - **NO CLASSES** - Spring Break.}*

**14/15 March 13<sup>th</sup>/March 16<sup>th</sup>, 2007**

Lecture 14: Cellular Systems: GSM, CDMA, OFDM (**T/V**: Chap 4, **G**: Chap 12,13,15)

Lecture 15: Cellular Systems: GSM, CDMA, OFDM (**T/V**: Chap 4, **G**: Chap 12,13,15)

**16/17 March 20<sup>th</sup>/Mar 23<sup>rd</sup>, 2007**

Lecture 16: Cellular Systems: GSM, CDMA, OFDM (**T/V**: Chap 4, **G**: Chap 12,13,15)

Lecture 17: Cellular Systems: GSM, CDMA, OFDM (**T/V**: Chap 4, **G**: Chap 12,13,15)

**18/19 March 27<sup>th</sup>/Mar 30<sup>th</sup>, 2007**

Lecture 18: Multi-user Commns:TDMA/CDMA/OFDMA/CSMA (**T/V**: Chap 6, **G**:  
Chap 9)

**Case Study Choices Communicated to TA** (March 27<sup>th</sup>)

Lecture 19: **EXAM 2:** (March 30<sup>th</sup>)

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**APRIL:**  
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**20/21 April 3<sup>rd</sup>/Apr 6<sup>th</sup>, 2007**

Lecture 20: Multi-user Commns: TDMA/CDMA/OFDMA/CSMA (**T/V:** Chap 6, **G:** Chap 9)

Lecture 21: MIMO/ST-coding and Spatial Multiplexing (**T/V:** Chap 7-9, **G:** Chap 10)

**22/23 April 10<sup>th</sup>/April 13<sup>th</sup>, 2007**

Lecture 22: MIMO/ST-coding and Spatial Multiplexing (**T/V:** Chap 7-9, **G:** Chap 10)

Lecture 23: MIMO/ST-coding and Spatial Multiplexing (**T/V:** Chap 7-9, **G:** Chap 10)

**24/25 April 17<sup>th</sup>/April 20<sup>th</sup>, 2007**

*[Instructor may be away: Guest Lecture(s) or Pretaped Lecture]*

Lecture 24: Prof. Mona Hella, RF Circuit Design Challenges for Modern Wireless

Lecture 25: TBD

**[TIME PERMITTING]**

**26/27 April 24<sup>th</sup>/April 27<sup>th</sup> 2007**

**Case Study Due** (April 27<sup>th</sup>)

Lecture 26: MIMO Multi-User (**T/V:** Chap 10, **G:** Chap 10, 14.9)

Lecture 27: Cross-layer design, Research challenges, wrapup

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**28 May 1<sup>st</sup> 2007**

**EXAM 3:** 1<sup>st</sup> part of class