

ENGI 501: Teaching Engineering & Science Course Schedule

Week 1	
Due	Be prepared to introduce yourself to the class.
Topics	Introduction to the Course Student Introductions Teaching & Learning Misconceptions Components of Good Teaching
Readings	<i>Teaching Engineering</i> , Chapter 3. (On-Line; see the Resources page.) Humorous articles by R. M. Felder (See the Resources page.) —"The Way to Bet" Link —"We hold these truths to be self-evident" Link —"What do they know, anyway?" Link Supplemental Reading: <i>Teaching Engineering</i> , Chapter 1. <i>Teaching Tips</i> , pp. xvii, xxi, Chapter 1, Chapter 2, pp. 9-12.

Week 2	
Due	Post your short biography to OWL-Space. Prepare a response to your teaching-learning myth of choice.
Topics	Teaching Portfolios: types, what, why; teaching resources & toolkit. Responses to teaching-learning myth of choice Teaching at a research university: P&T, efficiency, scholarship Introduction to learning styles
Readings	<p><i>Teaching Engineering</i>: Sec. 17.1.3; note also Table 17-2 on page 9. <i>Teaching Tips</i>: pp. 2-7 "Teaching engineering at a research university: problems and possibilities," RMF, Link "If you've got it, flaunt it: uses and abuses of teaching portfolios," R. M. Felder and R. Brent. Link UMN Teaching Guides: Teaching Portfolio "The Scholarship of Teaching," RMF, Link</p> <p>Supplemental Reading (see Resources page): L. D. Fink, Chapter 1, Quality in Educational Programs P. C. Wankat, et al., "The Scholarship of Teaching and Learning in Engineering," Link; background & history of scholarship in teaching & learning. K. Smith, "Education Research Capabilities," OWL-Space; an introduction to current (2006) engineering education research. "The Future of Engineering Education V," RMF, et al., pp8-9. contents of summative teaching portfolios. Link <i>Scholarship Reconsidered: Priorities of the Professoriate</i>, E. Boyer 1990. P. Selden, 1995 & 1997; teaching evaluation & summative portfolios.</p>
Ongoing Tasks	<p>Observation: Select an undergraduate engineering course to observe; get the syllabus.</p> <p>Module: Consider module topics to develop (and a team).</p> <p>Portfolio: Identify educational journals for your field, and select an interesting paper.</p>

Week 3	
Due	Bring a journal paper on an educational issue of interest to class. Take the ILS (Paragon optional) and bring the results to class.
Topics	Learning Style Exercises Taxonomy of Learning: Bloom vs. Fink Defining course goals and outcomes Discussion of student-selected papers & resources.
Readings	"Meet Your Students: 1," RMF, sensing & intuitive learners, Link "Meet Your Students: 2," RMF, sequential & global learners, Link "Meet Your Students: 3," RMF, deep, surface, and strategic learners, Link <i>Teaching Engineering</i> , Sections 4.1, 4.2: Introduction & 4.2.1. <i>Teaching Tips</i> , pp. 10-12. L. D. Fink, Chapter 2, pp. 27-59. Supplemental Reading: "Learning and Teaching Styles In Engineering Education," Felder and L. Silverman; ILS styles & teaching practices to meet the needs of students with the full spectrum of styles. Link & OWL-Space. UNC-Teaching Handbook: Planning & Design. Link
Ongoing Tasks	Observation: Course syllabus evaluation; collect homework assignments.. Module: find a subject to develop and a group. Portfolio: Identify journals/sites for your Teaching Resources list.

Week 4	
Due	Syllabus critique for observed class
Topics	Evaluating Teaching: Multidimensional Approach Course Observation: Syllabus Critique & Discussion Learning Outcomes I: Felder vs. Fink Learning Outcomes II: Practice Writing & Discussion
Readings	<p><i>Teaching Engineering</i>, Chapter 16 <i>Teaching Tips</i>, pp.15-17; pp. 348-357 "How to Evaluate Teaching," Felder & Brent. Link. "A Protocol for Peer Review of Teaching," Felder & Brent. Link "Objectively Speaking," Felder & Brent. Link "Developing a Syllabus," UNC Teaching Handbook, Link "Your Syllabus," UMN Teaching Guide, with check list. Link</p> <p>Supplemental Reading: "What Do They Know Anyway? 2." RMF. Link "How to Teach (Almost) Anybody (Almost) Anything." RMF. Link L. D. Fink, Chapter 3, pp. 60-81. Syllabus Tutorial, UMN Center for Teaching & Learning. Link "Designing & Teaching Courses to Satisfy ABET Criteria," Felder & Brent. Link UNC-For Your Consideration: FYC 15, FYC 16 Link UNC Teaching Handbook: Evaluation of Teaching. Link UNC Teaching Handbook: App. C, D, E, & G in pdf document Link & OwlSpace</p>
Ongoing Tasks	Observation: identify course learning objectives; evaluate lecture style. Module: outline overall objectives. Portfolio: Begin development of teaching philosophy. Link

Week 5	
Due	Notes on observed class learning objectives & lectures Take the Teaching Goals Inventory. Link
Topics	Evaluating Learning Outcomes & Feedback Class Observation: Course & learning objectives discussion Grading: rubrics, team work Practice using and writing rubrics & questions
Readings	<i>Teaching Engineering</i> , Chapter 11. <i>Teaching Tips</i> , Chap. 7, pp 87-94, Chapter 11. “Designing Tests to Maximize Learning,” RMF Link Supplemental Reading: <i>Teaching Tips</i> , pp 94-104, Chapter 9. L. D. Fink, pp 82-101, pp 142-143. UNC-For Your Consideration: FYC 10, FYC 18 Link UNC Teaching Handbook: Testing; Grading. Link
Ongoing Tasks	Observation: Get copy of the quiz. Module: Draft learning outcomes. Portfolio: Draft teaching philosophy.

Week 6	
Due	Observed course homework & quiz evaluation. Module goals and learning outcomes.
Topics	Improving Lectures Class Observation: lectures & quiz evaluation Active Learning I: easy lecture supplements Modules: Goals, learning outcomes, and topics.
Readings	<p><i>Teaching Engineering</i>, Chapter 6 <i>Teaching Tips</i>, Chapter 6. "Any Questions?" RMF Link "Learning by Doing," Felder & Brent. Link "How About a Quick One?" RMF. Link</p> <p>Supplemental Reading: "It Goes Without Saying," RMF. Link "Designing Smart Lectures," UMN-CTL Tutorial. Link UMN Tutorial: Making Active Learning Work. Link UNC-For Your Consideration: FYC 2, FYC 5, FYC 6 Link UNC Teaching Handbook: Teaching Techniques; Active Learning. Link</p>
Ongoing Tasks	Observation: Summary report on observed class. Module: Determine weekly classes and topics. Portfolio: Finalize teaching philosophy statements.

Week 7	
Due	Portfolio teaching philosophy statement. Summary of class observations.
Topics	Active Learning II: guest speaker Class observation summaries; ENGI 501 mid-term evaluation. Active Learning III: PBL, cases, games, etc. Portfolio Status: Review teaching philosophy statements.
Readings	<i>Teaching Tips</i> , Chapters 16 & 17 L. D. Fink, pp 102-126 “The Many Faces of Inductive Teaching and Learning,” Prince & Felder. Link Supplemental Reading: UNC-For Your Consideration: FYC 3; FYC 14; FYC 23. Link <i>Teaching Engineering</i> , Chapter 7
Ongoing Tasks	Module: Develop lesson plans for classes. Portfolio: Incorporate class observation report.

Week 8	
Due	Spring Break No Class Session
Topics	
Readings	
Ongoing Tasks	

Week 9	
Due	
Topics	Picking Additional Course Topics Using Technology
Readings	<i>Teaching Tips</i> , Chapter 18 <i>Teaching Engineering</i> , Chapter 9 “Death by Power Point,” Felder & Brent. Link UMN Tutorial: Active Learning with PowerPoint. Link Supplemental Reading: UNC-For Your Consideration: FYC 11. Link
Ongoing Tasks	Module: Develop assignments. Portfolio: Draft teaching goals and plans.

Week 10	
Due	Module Summary
Topics	Laboratories: designing, teaching, grading Discussion: dealing with diversity Team Projects & Evaluation
Readings	<i>Teaching Engineering</i> , Chapter 9 <i>Teaching Tips</i> , Chapters 20 & 13 "Accounting for individual effort in cooperative learning teams," Link UNC-For Your Consideration: FYC 9. Link Supplemental Reading: "Turning Student Groups into Effective Teams," Link "Effective Strategies for Cooperative Learning," Link
Ongoing Tasks	Module: Develop example quiz questions. Portfolio: Draft introductory narrative.

Week 11	
Midterm Break: Thursday & Friday	
Due	Sign up for module presentation & micro-teaching.
Topics	Teaching Innovation, Problem Solving, & Critical Thinking Managing the Classroom Student Advising, Mentoring, and Interactions
Readings	<p><i>Teaching Engineering</i>, Chapters 5, 10, & 12 <i>Teaching Tips</i>, Chapter 21, 24, and pp 178-184 “On creating creative engineers,” RMF. Link</p> <p>Supplemental Reading: <i>Teaching Tips</i>, Chapter 25. UNC-For Your Consideration: FYC 20, FYC 22. Link UMN Workshop: Managing Conflict Link UNC Handbook: Instructional Roles Link</p>
Ongoing Tasks	Module: Finalize plans & prepare lecture.

Week 12	
Due	
Topics	Getting off to a good start as a new faculty member Time Management Requested Topics
Readings	<i>Teaching Engineering</i> <i>Teaching Tips</i> Supplemental Reading:
Ongoing Tasks	Prepare micro lecture.

Weeks 13 – 15	
Due	Module plans and lectures.
Topics	Module Presentations & Lectures Optional Topics, depending on schedule
Readings	To be determined
Ongoing Tasks	Portfolio: Incorporate module plans; finalize narrative.