Math087 - Mathematical Modelling - AY2023-2024 spring

George McNinch

Course Calendar

Date	DOW	Desc	Seq	Week	Details
01/17	Wed	Lecture	1	1	One dimensional optimization & sensitivity analysis
01/19	Fri	Assignment		1	no assignment collected
01/22	Mon	Lecture	2	2	Multi-dimensional optimization; Lagrange multipliers
01/24	Wed	Lecture	3	2	Mutli-dimensional continued: shadow prices
01/24	Wed	Tufts		2	**Academic Date:** *Last day to add a course*
01/26	Fri	Assignment		2	PS01: Optimization
01/29	Mon	Lecture	4	3	Optim. - Newton's method & variants
01/31	Wed	Lecture	5	3	Types of optimization & linear programming
02/02	Fri	Assignment		3	PS02: Linear programming
02/05	Mon	Lecture	6	4	Network flows & linear programming
02/07	Wed	Lecture	7	4	Duality & complementary slackness
02/09	Fri	Assignment		4	PS03: Dual linear programs
02/12	Mon	Lecture	8	5	Dual prices & integer programming
02/14	Wed	Lecture	9	5	Branch & Bound algorithms
02/16	Fri	Assignment		5	midterm report 1 (linear programming)
02/19	Mon	Tufts		6	**No classes:** *Presidents' Day*
02/21	Wed	Lecture	10	6	Graph models: max flow & min cut
02/21	Wed	Tufts		6	**Academic Date:** *Last day to drop a course without record*
02/22	Thu	Lecture	11	6	Bipartite graphs & matching
02/22	Thu	Tufts		6	**Tufts:** *Monday schedule*
02/23	Fri	Assignment		6	PS04: integer programming & max flow
02/26	Mon	Lecture	12	7	Finite-state machines & Transition diagrams
02/28	Wed	Lecture	13	7	Iteration matrices; eigenvectors & power iterations
03/01	Fri	Assignment		7	PS05: matching and finite-state machines
03/04	Mon	Lecture	14	8	Markov chains
03/06	Wed	Lecture	15	8	statistics & the Central Limit Theorem
03/08	Fri	Assignment		8	PS06: eigenvalues & Markov processes
03/11	Mon	Lecture	16	9	Monte-Carlo integration
03/13	Wed	Lecture	17	9	Monte-Carlo simulation
03/15	Fri	Assignment		9	midterm report 2 (page-rank)
03/16	Sat	Tufts		9	**No classes:** *Spring Break*
03/17	Sun	Tufts		9	**No classes:** *Spring Break*
03/18	Mon	Tufts		10	**No classes:** *Spring Break*
03/19	Tue	Tufts		10	**No classes:** *Spring Break*
03/20	Wed	Tufts		10	**No classes:** *Spring Break*
03/21	Thu	Tufts		10	**No classes:** *Spring Break*
03/22	Fri	Assignment		10	(no homework – spring break)
03/22	Fri	Tufts		10	**No classes:** *Spring Break*
03/23	Sat	Tufts		10	**No classes:** *Spring Break*
03/24	Sun	Tufts		10	**No classes:** *Spring Break*
03/25	Mon	Lecture	18	11	Binomial & Poisson distributions
03/27	Wed	Lecture	19	11	Recurrence relations & generating functions

Date	DOW	Desc	Seq	Week	Details
03/29	Fri	Assignment		11	PS07: Monte-Carlo methods
04/01	Mon	Lecture	20	12	Linear least squares
04/03	Wed	Lecture	21	12	
04/03	Wed	Assignment		12	Final project proposals due
04/03	Wed	Tufts		12	**Academic Date:** *Last day to withdraw from a course with W*
04/03	Wed	Tufts		12	**Academic Date:** *Last day to select Pass/Fail Option*
04/05	Fri	Assignment		12	PS08: binomial & poisson distributions
04/08	Mon	Lecture	22	13	
04/10	Wed	Lecture	23	13	
04/12	Fri	Assignment		13	PS09: recurrence & generating functions
04/15	Mon	Tufts		14	**No classes:** *Patriots' Day*
04/17	Wed	Tufts		14	**No classes:** *Makeup Day (no classes)*
04/19	Fri	Assignment		14	PS10: least squares & inverse problems
04/22	Mon	Lecture	24	15	
04/24	Wed	Lecture	25	15	
04/26	Fri	Assignment		15	
04/29	Mon	Lecture	26	16	
04/30	Tue	Tufts		16	**Academic Date:** *Reading Period*
05/01	Wed	Tufts		16	**Academic Date:** *Reading Period*
05/02	Thu	Tufts		16	**Academic Date:** *Reading Period*
05/03	Fri	Assignment		16	Final Project Due
05/03	Fri	Tufts		16	**Academic Date:** *Final Exam Period*
05/04	Sat	Tufts		16	**Academic Date:** *Final Exam Period*
05/05	Sun	Tufts		16	**Academic Date:** *Final Exam Period*
05/06	Mon	Tufts		17	**Academic Date:** *Final Exam Period*
05/07	Tue	Tufts		17	**Academic Date:** *Final Exam Period*
05/08	Wed	Tufts		17	**Academic Date:** *Final Exam Period*
05/09	Thu	Tufts		17	**Academic Date:** *Final Exam Period*
05/10	Fri	Tufts		17	**Academic Date:** *Final Exam Period*