					Tsinghua - Intro to simulation & modeling of complex systems - Aug 2015
					Part 0 - A quick "sneak preview" of the course
24-Aug	M	10.00-10.15	17.00-17.05	L1	some general infos and procedures
24-Aug	M	10.15-11.00	17.05-17.20	L1	A very quick "sneak preview" of the course
					Part I - Modeling
24-Aug	M	11.10-11.45	17.05-17.15	L1	I.1 - Sample problems from Electrical, Mechanical, Material, Civil & Biomedical Engineering
24-Aug	M		17.15-17.25		inclass work
24-Aug	M				I.2 - Assembling Models from Networks of Dynamical Systems
24-Aug	M	14.30-16.30	17.25-17.45	L1	I.2.a - conservation & constitutive laws
24-Aug	M		17.45-18.00		instructor available for individual questions
25-Aug	Tu	10.00-10.30	14.00-14.45	L2	I.2.b - Formulation - nodal analysis - seady state
25-Aug	Tu				break & time for inclass work
25-Aug	Tu	10.45-11.15	15.00-15.45	L3	I.2.c - Formulation - dynamical systems
25-Aug	Tu				break & time for inclass work
25-Aug	Tu	11.30-12.00	16.00-16.45	L4	I.3 - Assembling dynamical system models Finite Difference solvers
25-Aug	Tu				time for distributed inclass work
25-Aug	Tu	14.30-15.15	17.00-17.45	L5	I.3 - Assembling dynamical system models from Finate Element solvers
25-Aug	Tu		17.45-18.00		instructor available for individual questions
					Part II - Simulation
26-Aug	W	10.00-10.45	14.00-14.45	L6	II.1.a - Steady state analysis of linear system models
26-Aug	W	10.45-11.00			break & time for inclass work
26-Aug	W	skip			II.1.a - (cont) Adjoing method for sensitivity analysis
26-Aug	W	11.00-11.45	15.00-15.45	L7	II.1.b - Steady state analysis of non-linear system models
26-Aug	W	11:45-12.00			break & time for inclass work
26-Aug	W	12.00-12.15	16.00-16.45	L8	II.2 - Time domain simulation of dynamical systems models
26-Aug	W	12.15-12.30			break & time for inclass work
26-Aug	W	skip			II.3 - Important properties of physical dynamical systems (e.g. stability, passivity).
26-Aug	W	15.00-15.30	17.00-17.45	L9	II.4 - Uncertainty Quantification i.e. stochastic simulation or variation-aware simulation
26-Aug	W		17.45-18.00		instructor available for individual questions
					PART III: Compressing Linear Dynamical Systems
27-Aug	Th	15.30-16.30	14.00-14.45	L10	III.1 - Compressing LTI Systems with modal analysis
27-Aug	Th	16.30-17.00			break & time for inclass work
27-Aug	Th	15.00-16.00			III.2 - Compressing LTI Systems with the Projection Framework
27-Aug	Th	15.00-16.30	15.00-15.45	L11	III.2.a - The Projection Framework
27-Aug	Th	15.00-17.00	15.00-15.45	L11	III.2.b - Modal analysis, Proper Orthogonal Decomposition (POD) or reduced basis
27-Aug	Th	17.00-17.30			break & time for inclass work
27-Aug	Th	10.30-12.00	16.00-16.45	L12	III.2.c - Truncated Balance Realizations (TBR).
27-Aug	Th	12.00-12.30			break & time for inclass work
27-Aug	Th	15.00-16.30	17.00-17.45	L13	III.2.d - Passivity and stability preserving Moment Matching (PRIMA)
27-Aug	Th	16.30-17.00			instructor available for individual questions
		10.00-12.30			**Part IV - Compressing Non-Linear Dynamical Systems**
28-Aug	F		14.00-14.45	L14	IV.1 - Introduction, Examples, and Definitions
28-Aug	F		14.00-14.45	L14	IV.2 - Reduction of Weakly Non-Linear Dynamical Systems (Volterra Series).
28-Aug	F		14.00-14.45	L14	IV.3 - Trajectory Piece-Wise Linear (TPWL) + moment matching reduction
28-Aug	F		14.00-14.45	L14	IV.4 - Trajectory Piece-Wise Linear (TPWL) + balance realizations (TBR) reduction.
28-Aug	F		14.00-14.45	L14	IV.5 - Generationg of Compact Dynamical Models from Input/Output data
28-Aug	F				break & time for inclass work
		14.30-17.00			**PART V: Compressing Parameterized Dynamical Systems**
28-Aug	F		15.00-15.45	L15	V.1 - Motivations and problem classification
28-Aug	F		15.00-15.45	L15	V.2 - Compressing parameterized linear dynamical systems
28-Aug	F		15.00-15.45	L15	V.2.a - Reducing linear models with linear dependency on parameters
28-Aug	F		15.00-15.45	L15	V.2.b - Reducing linear models with non-linear dependency on parameters
28-Aug	F		15.00-15.45	L15	V.3 - Compressing non-linear models with non-linear dependency on parameters
28-Aug	F				break & time for inclass work
28-Aug	F		16.00-16.45	L16	V.4 - Application examples employing Parameterized Compact Dynamical Modeling
28-Aug	F		16.00-16.45	L16	V.4.a - Solving inverse problems (photolithography monitoring, material science property
28-Aug	F		16.00-16.45	L16	V.4.b - Accelerating MonteCarlo-like methods for solution of stochastic PDEs with