

ENSC 312 Mid-term Check points:

Here are some words and concepts we have covered so far in the course.

scales of motion	mesoscale	microscale	local scale
PBL / ABL	free convection	turbulence	fluxes
radiation balance	instability	convection	conduction
buoyancy	albedo	advection	roughness layer
laminar BL	conduction	1st Law of Thermo.	radiant energy
kinetic energy	constant flux layer	potential energy	thermal energy
flux-gradient	heat capacity	specific heat	diffusivity
conductivity	admittance	expon. decay/relax'n	Stephan-Boltzmann
Kirchoff's Law	Wien's Law	Cosine Law	$Q^* = Q_H + Q_E + Q_G + \dots$
shortwave radiation	longwave radiation	black body	water balance
eddy diffusivity	stability correction	DALR	momentum flux
friction velocity	roughness length	log profile	Reynold's decomp.
surface shear stress	eddy correlation	mixing length	profile methods
similarity	Bowen ratio	electricity analog	Penman-Monteith

Mid-term exam format and example questions:

This closed book exam is out of 15 marks and will last 50 minutes. Bring a calculator, pencil, and ruler. You will answer on the exam sheets. There will be three multi-part questions:

1. Five “define and explain in the context of this course” (e.g. words from above list). (5 marks)
2. A multi-part short answer question that may include a figure (e.g. explain the transfer of heat in soils) (5 marks)
3. Choose one calculation question from at least two (e.g. calculate the Richardson number for a given temperature/wind speed profile). (5 marks) Formulas and constants needed for any calculations will be provided, although you will need to recognize which to apply and how.