

ATOC 3500 - Guide to Reading for second Midterm

(red means not dealt with much in class, blue means we've talked about it, but not in as much detail as other topics)

Chapter 4

- Section 4.1 (p93-94) Visibility
- Section 4.1.1 (p94) Natural visibility reduction
- Section 4.1.2 (p94-97) Human activities
- Section 4.1.3 (p97-99) Visibility, particulate, and extinction
- Section 4.1.4 (p99-100) Meteorological effects
- Section 4.1.5 (p100-101) Visibility measurements
- Section 4.1.6 (p101-102) Patterns and trends
- Section 4.2 (p 103) Turbidity
- Section 4.3 (p104-105) Thermal pollution
- Section 4.4 (p 105-106) Aerosols and precipitation
- Section 4.5 (p 106-111) Atmospheric deposition
- Section 4.5.3 (p 111-112) Mercury deposition
- Section 4.5.4 (p 113) Pesticides, PCBs, dioxins and furans
- Section 4.6.1 (p 113-118) Stratospheric ozone depletion (see lecture notes for more correct chemistry)
- Section 4.6.5 (p 118-121) Antarctic ozone depletion
- Section 4.6.6 (p 121) Arctic ozone depletion
- Section 4.6.7 (p 121-122) Trends
- Section 4.6.8 (p 122-123) UV radiation
- Section 4.6.9 (p 123-124) Effects on human health
- Section 4.6.10 (p 124) Recovery of ozone layer

Chapter 4 (con't)

- Section 4.7 (p 124-136) Global Warming (a topic of ATOC 3600)
- Section 4.7.10 (p 137) Stratospheric gases and atmospheric temperature (I mentioned that there was a link between ozone depletion and global warming, but that it was subtle...this is worth reading)

Chapter 5 – Health Effects

- Section 5.1 (p 141-142) Air pollution episodes
- Section 5.2 (p 142-149) Exposure and determining cause-and-effect relationships
- Section 5.3 (p 149-156) Impact of pollutants on the human body
- Section 5.4 (p 156-161) Regulated air pollutants (I've talked about some of this in class, but not all of it – it is worth skimming, but don't try to take it all in)
- Section 5.4.3 (p 162-166) Particulate matter
- Section 5.4.4 (p 166-167) Hydrocarbons
- Section 5.4.5 (p 167-168) Nitrogen oxides
- Section 5.4.6 (p 169-170) Ozone
- Section 5.4.7 (p 170-174) Lead (interesting, but not a major focus of the class)
- Section 5.4.8 (p 174-175) Hazardous pollutants
- Section 5.5 (p 175-177) Smoking (not stressed too much in class, but worth reading for perspective)
- Section 5.6 (p 177-179) Risk assessment and management

Chapter 6 – Welfare Effects

This chapter is worth reading in entirety, but for the exam, focus on the following sections, but read for general information, not to memorize all the details:

6.1 (6.1.1, 6.1.1.1, 6.1.1.2, 6.1.1.6, 6.1.1.7)

6.1.2, 6.1.3

6.2

6.3 (6.3.1, 6.3.2, 6.3.2.1, 6.3.2.1.1, 6.3.2.1.2, 6.3.2.2, 6.3.2.2.1, 6.3.2.2.2, 6.3.3)

6.4 (6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.4.8)

The following sections deal with issues I have touched on in class – worth reading, ~15 pages.

Chapter 7 – Air Quality and Emissions Assessment

Section 7.3 (p 245-246) Air quality modeling

Chapter 8 – Regulation and Public Policy

Section 8.4.9 (p 276-277) Stratospheric ozone depletion

Section 8.4.10 (p 277-278) Acid deposition

Section 8.4.11.5 (p 292) Fuel additives

Section 8.6.4 (p 292-294) Motor vehicle emissions

Chapter 9 – Control of Motor Vehicle Emissions

Section 9.2 (p 312-315) – Automotive fuels

Chapter 10 – Control of emissions from Stationary Sources

Section 10.1.1 (p 321-322) Tall stacks

Section 10.1.2 (p 322) Fuel use policies

Chapter 11 – Indoor Air Quality

Section 11.3.2 (p 357-359) Radon

Terms (some old) that you should know – see Glossary:

absorption	accumulation mode	acid rain	acidic deposition
acute exposure	aerosol	air pollution episode	air quality modeling
ambient air	ammonia	antagonism	area source
atmospheric lifetime	attenuation	backscattering coefficient	
bioaccumulation	biogenic pollutants	bromine monoxide	carbon monoxide
carcinogen	catalyst	Chapman cycle	chlorine monoxide
chlorofluorocarbons	chronic acidification	chronic bronchitis	chronic exposure
cloud condensation nuclei		coarse particles	combustion
contrast	cost-benefit analysis	deliquescence	Dobson units
dry deposition	emission rate	entrainment epidemiology	
episodes	episodic acidification	ethanol	extinction coefficient
fine particles	forest decline	frequency	fuel additives
gasolines	gravity	halogenated hydrocarbons	
haze	Hertz	humidity	hydrocarbons
hydrochloric acid	hydroxyl radical	hygroscopicity	indoor air
inhalable particulate matter		Koshmeider equation	lapse rate
London-type smog	melanoma	methane	Mie scattering
mixing height	mobile source	Montreal Protocol	morbidity
mortality	mutagen	necrosis	nitrates
nitric acid	nitric oxide	nitrogen deposition	nitrogen dioxide
nitrogen oxides	nitrous oxide	nucleation	opacity
oxidation	ozone	ozone depletion	particulate matter
Photochemical smog	photochemistry	planetary boundary layer	
PM2.5	risk assessment	saturation vapor pressure	
secondary pollutant	skin cancer	solar spectrum	sulfates
sulfur dioxide	sulfuric acid	synergism	threshold
Total suspended particulates		turbidity	ultraviolet light
UV-A	UV-B	ventilation	visibility