1st Lecture
1) What is the difference between “standing stock” and “production” and what are the units of each?
2) Satellite pictures of ocean color tell us what about the plankton in the ocean?
3) What are the three main roles that planktonic consumers play in food webs, and by extension, in biogeochemical cycles?
4) Why do we, as humans on the planet, care about downward flux of fixed carbon in the ocean? Think global climate change...
5) What does the presence of a phytoplankton bloom mean in terms of the functioning of the ecosystem? Give some scenarios for how a bloom might develop (see Irogoe in paper)

2nd Lecture
1) What are the 5 modes of protist feeding?
2) Give an example of the type of protist you would expect to perform each type of feeding?
3) Describe diffusion feeding in terms of the characteristics of the predator and prey.
4) What is the most important type of feeding on bacteria? Why?
5) Describe how dinoflagellates feed. What is surprising in a food web context about their ability to capture prey?
6) Define mixotrophy. Would you expect it to be more common in eutrophic or oligotrophic environments and why?
7) What grazing organism is the most important for forming silicious oozes? What type of feeding does this organism use? What phytoplankton would also be important in this?
8) What type of grazing organism is found in calcareous oozes? Why would paleoceanographers care about these protist grazers?
9) How do protists digest their food? How does their digestive process differ from copepods and other metazoans with a defined gut?
10) How are the waste (fecal) material of protozoans packaged? Why is this important for recycling or organic and inorganic matter in the ocean?
11) What do ciliates feed on, mostly? Are they major grazers on bacteria or picoplankton?
12) What group of flagellates is the most important bacterivore in the Southern Ocean?
13) Amongst the protists, which groups would be the most important grazers on diatoms? Why?

3rd Lecture:
1) What is the definition of the clearance rate? Specific clearance rate?
2) What is the shape of the curve of clearance rate as a function of prey concentration?
3) What is the unit of instantaneous prey mortality or more simply, mortality? What is the unit of instantaneous prey growth, otherwise known as gross growth rate? How do you relate these terms in the exponential growth equation?
4) Define ingestion rate. What is the relationship between ingestion rate and prey concentration? What about between ingestion rate and clearance rate?
5) In words, what is the reason (theoretical) behind the shape of the functional response curves?
6) Why does ingestion rate plateau at a certain prey concentration? How does this concentration vary with different prey types?
7) Why does clearance rate drop at high prey concentrations?
8) Why is it more likely that clearance rate will drop before prey concentration reaches zero? What is the threshold concentration refer to? Is there any evidence that this threshold concentration exists?
9) What determines the optimum range of prey size selected by a particular grazer?
10) What is one top down control hypothesis for why the bacteria in the ocean are so small?
11) How would increased prey motility affect the clearance rate for a direct interception flagellate? A heterotrophic pallium feeding dinoflagellate? A sarcodine diffusion feeder? Why might a prey cell move faster or more actively if it was more likely to be consumed when it did?
12) What is the evidence for chemosensory behaviour in protists?
13) How would you expect turbulence in the ocean to affect the feeding rates of direct interception feeders relative to filter feeders?
14) What ratio of predator to prey is often used? How would you expect that ratio to vary for direct interception feeders relative to filter feeders? What about for dinoflagellates?
15) Why don’t more metazoans, such as copepods, feed on picoplankton?
16) Which metazoans do feed on picoplankton? How do they manage it?
17) What effect does the predator:prey size ratio have on food web transfer efficiency?