

DNA analysis of Environmental Samples: From sample to next generation sequencing

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Suggested reference book: An Introduction to Molecular Evolution and Phylogenetics by Lindell Bromham

<b>Date</b>	<b>Topic</b>	<b>Location</b>	<b>Homework</b>
June 1	Introduction Sample collection Introduction to DNA extractions	Min Kao 623	Find a paper detailing the best storage methods for your study system.  Research the best extraction methods for your system, with reference.
June 8	DNA extraction lab	Hesler 115	Make a list of the taq(s) and other reagents used in your lab.
June 15	PCR discussion	Min Kao 623	Find a paper with a PCR relevant to your work. Write out how to replicate the PCR in the paper. What locus are the primers amplifying and how big is the product?
June 22	PCR lab	Hesler 115	Research the PCR cleanup methods used in your lab.
June 29	PCR cleanup	Min Kao 623 &/or Hesler 115	History of sequencing paper: Heather, J. M. and B. Chain (2016). "The sequence of sequencers: The history of sequencing DNA." <u>Genomics</u> <b>107</b> (1): 1-8
July 6	Sanger Sequencing	Min Kao 623 & (maybe) Walters A211	Find a paper with PCR applications relevant to your research (NOT NextGen)
July 13	SNP analysis	Min Kao 623 & (maybe) Walters A211	
July 20	DNA lab  -any additional extraction, PCR, or cleanup needs -hands-on with magnetic bead cleanups and multichannel pipettes	Hesler 115	-NextGen review paper: Goodwin, S., et al. (2016). "Coming of age: ten years of next-generation sequencing technologies." <u>Nat Rev Genet</u> <b>17</b> (6): 333-351. -NextGen application note: An Introduction to Illumina Next- Generation Sequencing Technology for Agriculture. -Optional RADseq review paper: Andrews, K. R., et al. (2016). "Harnessing the power of RADseq for ecological and evolutionary genomics." <u>Nat Rev Genet</u> <b>17</b> (2): 81-92.
July 27	Next Gen	Min Kao 623	Find a NextGen paper relevant to your research
August 3	Next Gen	Min Kao 623 & Walters A215	
August 11	Open Discussion	Min Kao 623	

