

# EEC 130A: Lecture 1 Additional Notes

In Tuesday's lecture, some asked what the mission of the Voyager probe is and I disappointedly did not know. I did some research after the lecture and found more information. The Voyager program consists of two identical probes (Voyager 1 & 2) flying in different directions, both tasked with the mission “to explore the planets of the outer solar system and the interplanetary environment”.

NASA Voyager page: [http://en.wikipedia.org/wiki/Voyager\\_1](http://en.wikipedia.org/wiki/Voyager_1)

Wikipedia pages for Voyager 1 ([http://en.wikipedia.org/wiki/Voyager\\_1](http://en.wikipedia.org/wiki/Voyager_1)) and Voyager 2 ([http://en.wikipedia.org/wiki/Voyager\\_2](http://en.wikipedia.org/wiki/Voyager_2)).

The Wikipedia pages list the scientific equipment on board. I see a lot of “spectrometer”, “magnetometer”, “radio”, and etc. And I know that these are all related to electromagnetics one way or another. Read more on these if you like.

In the NASA page, I also found the following paragraph describing the radio communication equipment on the Voyager probes.

“Communications were provided through the high-gain antenna with a low-gain antenna for backup. The high-gain antenna supported both X-band and S-band downlink telemetry. Voyager was the first spacecraft to utilize X-band as the primary telemetry link frequency. Data could be stored for later transmission to Earth through the use of an on-board digital tape recorder.”

I've underlined the words that are closely relevant to this course. The first two concern the radiation of electromagnetic waves (will be covered in depth in EEC 130B and EEC 133). The last two are names for segments of the microwave region of the electromagnetic spectrum. Section 1.5 in the textbook also discusses the electromagnetic spectrum.

Following the links below to read more on these topics:

Antenna: [http://en.wikipedia.org/wiki/Antenna\\_\(radio\)](http://en.wikipedia.org/wiki/Antenna_(radio))

Antenna gain: [http://en.wikipedia.org/wiki/Antenna\\_gain](http://en.wikipedia.org/wiki/Antenna_gain)

X-band: [http://en.wikipedia.org/wiki/X\\_band](http://en.wikipedia.org/wiki/X_band)

S-band: [http://en.wikipedia.org/wiki/S\\_band](http://en.wikipedia.org/wiki/S_band)