Ge 194 Scientific Issues in Mars Landing Site Selection. 3 units; *second term. Course is open to any GPS graduate student; others, with instructor permission (so as to ensure sufficient background to actively participate in analysis of the readings)*. The Mars2020 mission will carry an instrument suite for examination of martian stratigraphy, chemistry, mineralogy, and organics in detail at one site. It is also charged with collecting a suite of samples for return to earth, suitable for examination over coming decades by a broad community of scientists interested in diverse studies of Mars' differentiation, atmospheric evolution, and the presence/absence of biosignatures. Existing candidate sites present the community with a suite of difficult decisions about what type of paleoenvironment to explore and what time period of Mars to examine so as to simultaneously optimize science return from in situ rover data and from the examination of samples on Earth. Here, we will read mission design and sample return guidance documents and peer-reviewed literature about the landing sites. Participation by graduate students in diverse fields of geological and planetary sciences (not only Mars remote sensors!) is strongly encouraged so as to focus on identifying key knowns/unknowns about each site and the potential for in situ investigations or samples returned from each site to answer key scientific questions broadly applicable to geosciences/planetary sciences. The course will be conducted with an online component in parallel with similar reading seminars at the institutions of Co-I colleagues on Mars-2020. Instructor: Ehlmann