ARXIV EXPLORATION

PENN SUMMER PREP PROGRAM
EXPLORATIONS IN MATHEMATICAL INQUIRY

MATT DECROSS

Most modern research articles in any scientific field end up published in a journal. However, the review and editing process for journal articles can take months to years (delaying scientific progress and obscuring "who published first"), published material is often behind paywalls, and lesser-known authors may face barriers to entry. To avoid and/or alleviate these problems, most modern mathematicians (and physicists, and computer scientists) post drafts of their papers to an open-access online server hosted by Cornell at `https://arxiv.org/`, called "arXiv" or "the arXiv" (pronounced "archive"). Anyone (with an academic email, usually) can post papers there, all papers are free to download, and publication is essentially instantaneous (typically appearing the day after submission).

This assignment has two parts. First, navigate to the arXiv and explore the various research categories on the front page a bit. In particular note the categories under Mathematics, which comprise most modern mathematical research fields. Second, navigate to any sub-category (doesn't have to be under Mathematics) and search through the recent papers until you find one with some words that seem interesting and mildly comprehensible to you. Read the abstract, introduction, and discussion/conclusion of the paper (if these sections exist), and write a one-paragraph layman's summary of what you think the paper was about. Make sure to look up definitions for any technical terms you use in your summary, and try to explain these terms as part of the summary. It's OK if you only have a very vague idea if anything of what the paper is saying if anything – reading full papers on the arXiv requires years of study and experience, but the more papers you see, the easier it becomes!