Survey of Materials
Team project 2, due dates are set in Course schedule and Canvas LMS
Topic: Structural types

Analyze a structural type or a class of structural types: definition, structure, bonding, structure-property relationships, structural trends, related structural types, what kind of materials prefer this structure and why these materials prefer this structure etc. Here is an exemplary list of choices:

- Close-packed structures (metals)
- Close-packed structures (alloys)
- Closely copacked compounds (ionic crystals)
- Tetrahedrally coordinated lattices (Si etc.)
- Inorganic sheets and layered crystals (graphene etc.)
- Inorganic polymers (Se etc.)
- Crystals of diatomic molecules
- High-pressure polymorphs of Si
- High-pressure polymorphs of P
- Perovskites (deformations)
- As/GeTe structural type (deformations)
- Rutile structure
- Chalcopyrite structure

Reminder: This is a scientific project whose more or less complete solution has a complexity scale of a peer-reviewed publication. That is why a precise exhaustive solution is not required. But try to do your best, spending a reasonable amount of time (about 4 hours per team member). It is expected that you will take our advisory on team-projects. Prepare 10 min oral presentation and be ready for additional 10-20 min of discussion. A short written report (1 page of original text + unlimited number of figures and tables) with response to all comments (the length of the response is not limited) is also required and should contain the information on participation of each team member. Assessed are science, skills, presentation (both oral and slides), discussion, and written report.

General recommendations: Rationalize collected data, every set of data should be discussed. Discussion of applications is only meaningful if you explain how material properties are connected to such applications (of course, some applications not related to key properties of a given class of materials can also be mentioned). Make 1-3 conclusions fully supported in your work. Find at least one central idea/thought/thread embracing the entire project.