**Computer Science Research Guide | M&M**

1. **Week One: Introductions and goals** 
   1. Introductions
   2. Define two short-term goals to accomplish by the end of academic year
   3. Define long-term career goals
   4. About Academic Research
      1. Undergraduate
         1. Research Symposiums
         2. Paid opportunities
            1. Off-campus research
            2. Work-study
            3. Paid from Professor’s Grants
         3. [Research Experience for Undergrads (REU)](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517)
         4. [CS Research fellowships](https://www.pathwaystoscience.org/Discipline.aspx?sort=TEC-ComputerSci_Computer%20Sciences#Undergraduate%20Students)
      2. Graduate
         1. Research Thesis option
            1. [UTRGV thesis and dissertation important dates](https://www.utrgv.edu/graduate/for-new-and-current-students/thesis-and-dissertation/index.htm)
         2. Available Research Scholarships/ Grants
            1. [UTRGV Grad- Dean’s Traditional Scholarship](https://www.utrgv.edu/graduate/funding/traditional-deans-scholarship/index.htm)
            2. [Presidential Graduate Research Assistantship](https://www.utrgv.edu/chemistry/_files/documents/pres-gra-f18.pdf)
            3. [NSF- Graduate Research Fellowship program](https://www.nsfgrfp.org)
      3. How research helps students develop various technical and soft skills
      4. Career options
         1. Academic Research
         2. Industry Research
         3. SWE/Data Science opportunities for students with research background
2. **Week Two: Navigating academic CS research** 
   1. UTRGV CS Research Faculty and their projects
      1. [Algorithmic Self-Assembly Research Group](https://asarg.hackresearch.com/main/) - Dr. Wylie, Dr. Schweller
      2. [Machine Intelligence](http://donkim22.dreamhosters.com/) - Dr. Kim
      3. [Molecular Biology Data](https://faculty.utrgv.edu/marzieh.ayati/research.html) - Dr. Ayati
   2. Research Grants
      1. About
      2. [ESAA](https://www.utrgv.edu/engaged/esaa/index.htm)
      3. How Professors obtain grants
   3. Research Conferences
      1. ASARG - [SODA](https://www.siam.org/conferences/cm/conference/soda21), [DNA](http://dna27.iopconfs.org/Home), [CCCG](https://www.cccg.ca/), [JCDCG](http://www.alg.cei.uec.ac.jp/itohiro/JCDCGG/), [ICALP](http://easyconferences.eu/icalp2021/), [ESA](http://esa-symposium.org/)
      2. Machine Intelligence - [ICDIS](https://www.icdis.org/), [SIGMOD](https://sigmod.org/), [BIBE](https://www.ieeebibe2020.org/), [BIBM](https://ieeebibm.org/BIBM2021/), [ICMLA](https://www.icmla-conference.org/)
      3. Molecular Biology Data - [ACM-BCB](http://acm-bcb.org/), [PLoS](https://plos.org/)
   4. Life as a Student researcher
      1. Frequent reading
      2. Working in a research team (Don’t let intimidation settle!)
      3. Presenting your work to mentors
      4. Contribution and your name on published papers
      5. Connections and mentors for life!
   5. What research interests you? Discuss with mentor
3. **Week Three: Research Journals and manuscripts**
   1. Gain access to resources as a UTRGV student
      1. [OpenAthens](https://www.openathens.net)
      2. [UTRGV digital library](https://www.utrgv.edu/library/)
      3. How to search for your topic of interest
   2. [CS Research Journals](https://www.springer.com/gp/computer-science/all-journals-in-computer-science)
      1. Machine Learning - [JBCB](https://www.worldscientific.com/worldscinet/jbcb?campaignid=336010695&adgroupid=23075846775&creative=88596011175&keyword=&gclid=Cj0KCQjwo-aCBhC-ARIsAAkNQisLTFgHv6en0N5StVXHk7ljBEZhY7Yz5ProwRXKTaL_x4VtVB9Xo4saAujGEALw_wcB), [IJDMB](https://www.inderscience.com/jhome.php?jcode=ijdmb),[TCBB](https://dl.acm.org/journal/tcbb)
      2. Molecular Biology Data - [Proteomics](https://analyticalsciencejournals.onlinelibrary.wiley.com/journal/16159861), [EURASIP](https://bsb-eurasipjournals.springeropen.com/)
      3. ASARG - [Algorithmica](https://www.springer.com/journal/453)
   3. Process of Publishing a paper
      1. Submission
      2. Review
      3. Edits
      4. Resubmission
   4. Published papers
      1. Open access vs not open access
      2. “peer-reviewed”‘?
      3. STRUCTURE!
   5. Assignment!
      1. Pick a research paper you are interested in and explain it to mentor

1. **Week Four: Approaching Faculty for open research positions**
   1. How to write an interest email to a professor
   2. CS research needed in every department!
      1. Department of Computer Science
      2. Department of Mathematics
      3. Department of Biology, Chemistry, Physics
      4. Department of Sociology
      5. School of Medicine
      6. College of Business
   3. Assignment (optional)
      1. Send an interest email to a research professor
      2. Go to a professor’s office hours and ask questions about their research!
2. **Week Five: CS Research Opportunities outside of campus**
   1. CS Research Internships
      1. [Summer CS Research](https://www.mtholyoke.edu/~blerner/summer.html)
   2. Assignment (optional)
      1. Apply to at least two CS research internship positions
3. **Week Six: Professional development: Resume and networking tips!**
   1. Research on a resume
   2. LinkedIn
   3. What’s next?