

Rising seniors spend summer in Triangle area research internships

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The school year is finally upon us. Perhaps you, along with the students of NCSSM's Summer Research and Internship Program (SRIP), are wondering how the summer went by so quickly.

The 75 students selected for admission to the program came from diverse research backgrounds. Some students were in NCSSM's research programs. Others were part of the mentorship program or took research experience classes.

Still others had little to no prior research experience, so the first several days were mostly orientation. Students learned about how to read research papers, find articles online, and deal with difficult real world situations (missing the bus, breaking something expensive, etc.)

They learned about how the scientific method is rarely a straightforward process, and how hard work, resilience, and curiosity were the keys to a successful project. At the end of the day was a group picture (see above).

Many students, after choosing the field they would be working in, worked with their faculty sponsors to complete a literature review and research proposal for submission to NCSSM's SRC (Scientific Review Committee).

These proposals identified the goals of the research, the

photo courtesy of ncsm.edu



methods they would employ, safety precautions, and data collection plans.

Over the intense 6-week (5 week for NCSU students) program, summer research students worked closely with their expert mentors at colleges including Duke, NCSU, NCCU, UNC, and Meredith College, accumulating over 175 contact hours uninterrupted by the tests and homework of the school year.

"The goal is to engage the students in a real-world learning experience to further develop knowledge in a field of study, and to get the opportunity to be hands-on

as they progress on their own projects," explains Sarah Shoemaker, Mentorship and Research Coordinator.

Most students caught a bus at 8 a.m. each morning to travel to their research locations and were picked up at around 4 p.m.. Others, however, took taxis to their internships, worked on campus, or made alternative transportation plans with Shoemaker to stay at their labs for longer.

Outside of research, the experiences of a summer research student were all too familiar for NCSSM's residential students.

Students learned to share

the available dorm space (Hunt for guys, 2nd and 3rd Bryan for girls) with students from other programs, including Summer Accelerator, Step up to STEM, and others.

Soon-to-be RLAs (Residential Life Assistant) honed their skills by taking check and monitoring housekeeping. SLIs (Student Life Instructors) were available in SLI offices, and rotated throughout the summer.

Housekeeping was still required, but only on Tuesdays, Thursdays, and Sundays, and the level system was suspended for the summer, generally in favor of leniency (except for

grave offences like missing the bus, etc. which carried the risk of removal from the program).

Of course, the program wasn't without fun. Each week, loops ran to popular destinations, and a Google document was available for activity requests. Toward the end of the summer was a mandatory picnic.

Students' research experiences culminated in a 10-12 minute oral presentation or poster presentation at NCSSM's summer research symposium, which was attended by students, parents, mentors, rising juniors, and others.

NASA's New Horizons obtains high-resolution pictures of Pluto

BY CHRISTA PARRISH
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Organic compounds fall in a somber drizzle; glaciers contrived of nitrogen lurk over its unknown, enigmatic surface- Pluto. Past speculations indicate that the celestial body was nothing of importance, a geologically dead mass.

But looking at the images from NASA's New Horizons spacecraft, this hulking apparatus covered in layers of ice is languidly maturing before our eyes.

Dr. William McKinnon, professor of earth and planetary sciences at Washington University in St. Louis states that the "actual evidence for recent geological activity is simply a dream come true".

Pluto's discovery by Clyde Tombaugh (February 18, 1930) has brought about countless postulations regarding what the dwarf planet would actually be comprised of.

Alan Stern, NASA's

Principal Investigator on New Horizons commented that "the Pluto we imagined will just go away like smoke." Other team members have realistic expectations, some of which are backed by fact.

Pluto was expected to have a reddish hue due to the sunlight reacting with organic compounds residing on its surface.

Past blurry Hubble images have indicated that it is covered in disparate patches of ice along the surface- patches that are in part dark, in part extremely bright. Levitating above Pluto is a billowy nitrogen atmosphere, possibly 350 times the volume of Pluto itself. The reality exceeds expectations.

Frosted mountains, dimpled landscapes, glaciers composed of fluidic nitrogen- all these make up Pluto's western and northern regions. The south contains mountain ranges that loom over the area they reside. Beneath the succession of

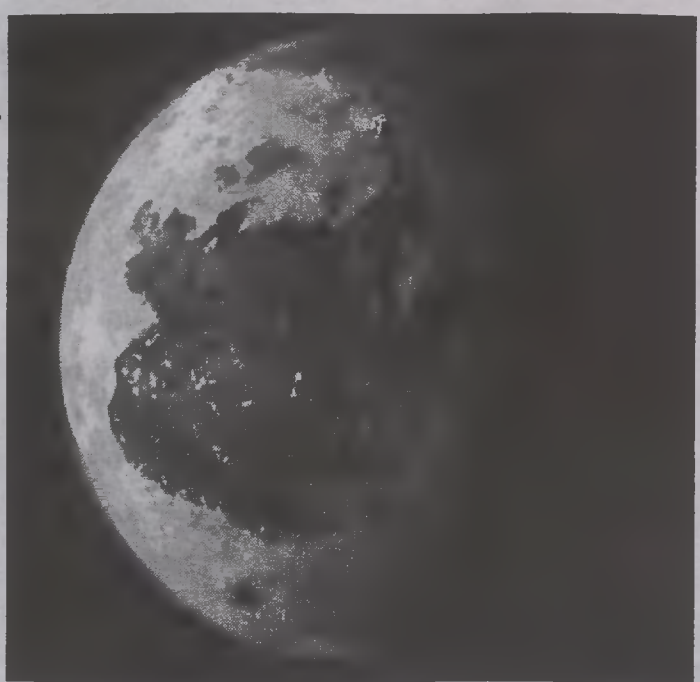
massive elevation lies pools of non-water ice.

These ices, made of nitrogen, carbon monoxide, and methane are "geologically soft and malleable, even at Pluto conditions" says Dr. McKinnon. The ice flows, in combination with the Plutos' polygonal feature, imply that the mass is being powered by escaped heat oozing from the planet's interior.

Enhanced color images display that Pluto is more of a Jackson Pollock than previously thought. It is speckled with blotches of the dark, bright, blue, and pinkish white variety. Pluto's polar cap stands out- a rusted orange bronze dripping down the planet like an egg smashed on the head. Scientists are not yet sure what causes such chromatic configuration.

Pluto's atmosphere brings about more bewilderment. The gauzy but billowy shroud that abides 1000 miles (1600 kilometers) above

photo courtesy of NASA



the surface has continually demolished any theory made. Predictions indicated that as Pluto approaches winter, its atmosphere would collapse. Instead, the atmosphere has become puffier over the years, while losing nearly half its

mass. The findings of New Horizons have been equally surprising and educational. Due to 15 years of non-stop work, NASA now has a better understanding of what makes up the frosted dwarf planet.