1. ACS Nuclear & Radiochemistry Summer School.
   San Jose State University, San Jose, California, and
   Brookhaven National Laboratory, Upton, New York
   
   This is a competitive fellowship program that consists of lecture and laboratory components. It covers the fundamentals of nuclear theory, radiochemistry, nuclear instrumentation, radiological safety, and applications to related fields. Laboratory work will introduce the midshipman to state-of-the-art instrumentation and technology that are used routinely in basic and applied nuclear science. In addition, there are special symposia, guest lectures, and field trips to nearby research centers. The midshipman will receive academic credit awarded by San Jose State University (7 units) or the State University of New York at Stony Brook (6 units). This internship helps to prepare USNA graduates for service in the nuclear communities. Because it is a school, it is not eligible for PTE credit.
   https://chemistry.missouri.edu/nucsummer
   - Dates: 9 June – 21 July 2018
   - Eligible for PTE credit: no
   - Qualifications: rising 1/C or 2/C, 2 years of chemistry, 1 year of physics, 1 year of calculus
   - Funding: See POC
   - Application: (1) See website above; deadline 1 February 2018. (2) Also, submit chemistry application. Note: See the POC asap before applying.
   - POC: Prof McClean mcclean@usna.edu

2. Armed Forces Radiobiology Research Institute
   (AFRRI), Bethesda, Maryland.
   
   Radiobiology Research
   
   Midshipmen will work with military and federal civilian scientists on projects related to AFRRI’s research portfolio in radiation biology, which includes biochemical and physiologic mechanisms, countermeasure development, radiation injury/dose assessment and prognostication, the effects of combined injury involving radiation, and delayed or late effects such as fibrosis and cancer. Specifics of each project will be determined after interaction between intern and mentor.
   https://www.usuhs.edu/afri
   - Dates: Block 1, 2, or 3.
   - Eligible for PTE credit: yes
   - Qualifications: 1 year of chemistry. 1 semester of biology desired.
   - Funding: reimbursement for daily commutes from USNA.
   - Application: Submit chemistry application to POC.
   - POC: Prof McClean mcclean@usna.edu

3. The Baruch S. Blumberg Institute, Buck County, Pennsylvania.
   
   Hep B Research
   
   A variety of research projects that center around hepatitis and virus research are available. They center around the Early Detection of Disease, Experimental Therapeutics, and Molecular Pathogenesis.
   http://blumberg institute.org/
   - Dates: Block 1 or 3.
   - Eligible for PTE credit: yes
   - Qualifications: rising 1/C or 2/C. Chemistry major or biology background.
   - Funding: fully funded.
   - Application: Submit chemistry application to POC.
   - POC: Prof McClean mcclean@usna.edu

   Infectious Organisms Research
   
   The Bureau of Public Health Laboratories (BPHL) – Miami is one of 3 state reference laboratories in Florida. It provides testing to private sector laboratories for rare and unusual infectious organisms. BPHL - Miami also may confirm the findings of a private laboratory or perform additional high complexity tests for diseases of public health importance. BPHL also belongs to the National Laboratory Response Network for Bioterrorism (LRN-B). The midshipman will assist laboratory personnel in the following:
   - The testing of drinking water and public beach waters.
   - Screenings for the following STDs: Chlamydia, gonorrhea, Hepatitis B, HIV, Syphilis.
   - Screenings for intestinal and blood parasites.
   - The testing for high-risk diseases such as rabies.
   - Dates: Block 1.
   - Eligible for PTE credit: yes
   - Qualifications: 1 semester of biology.
   - Funding: fully funded.
   - Application: Submit chemistry application to POC.
   - POC: Prof Smith vsmith@usna.edu

5. Defense Forensic Science Center (DFSC), Forest Park, Georgia.
   Forensic Science
   
   Interns perform hands-on research and learn about various disciplines of forensic investigation. At the end of the program, Interns present their data to the Director of the Laboratory, the Chief Scientists, Branch Chiefs and other laboratory personnel. Due to the nature of the laboratory and the various area of forensic analysis performed, the research conducted at this laboratory can vary significantly. However, recent and current projects include: Gunshot residue analysis, Spice detection, explosives testing and detection, DNA mixture separations, and latent fingerprint lifting from mixed surfaces. Candidates may be required to read journal articles, conduct literary searches, and learn instrumental techniques before arriving at the laboratory. Depending on the research project, interns will have to learn how to use instrumentation.
   http://www.cid.army.mil/dfsccasar.html
   - Dates: only Block 3 (recent change)
   - Eligible for PTE credit: yes
6. National Human Genome Research Institute (NHGRI), Bethesda, Maryland.  

**Human Genome Research**  
Midshipmen will work with civilian scientists and clinicians on research projects that center around genetics and genomics. They will assist the scientists in carrying out experiments that are aimed at developing better approaches for detecting, diagnosing, and managing genetic disorders. Possible specific research areas are: a study of genetic changes that lead to the initiation and progression of cancer; the identification of genetic abnormalities responsible for human disease; the use of molecular genetics to identify disease-associated gene defects.

http://www.genome.gov/10000218  
- Dates: Block 0 + 1 (or by arrangement for 6 weeks).  
- Eligible for PTE credit: yes  
- Qualifications: any class. chemistry major.  
- Funding: not funded.  
- Application: (1) See website above; deadline 1 March 2018. (2) Also, submit chemistry application. Note: See the POC asap before applying.  
- Other: Midn must commute daily from USNA.  
- POC: Prof McClean mcclean@usna.edu

7. Naval Research Laboratory, Washington, D.C.  

**Biochemical Aspects of Barnacle Glue**  
Hard fouling organisms such as barnacles stick to ship hulls and significantly impede maritime operations, costing the US Navy millions of dollars per year in coating, cleaning and added fuel costs. Such a tenacious underwater bond relies on specialized proteins that form an adhesive for permanent attachment of their hard outer shells to surfaces. NRL’s Chemistry and BioMolecular Science Divisions are applying cutting-edge biomolecular and bioinformatic approaches to produce a new, more comprehensive picture of the specialized proteins found in barnacle adhesive. Midshipmen will investigate the biochemical aspects of barnacle glue, which will involve the development and application of colorimetric/fluorimetric assays that are sensitive to the molecular structure of the glue. These assays will also be used to understand the properties of proteins designed to mimic barnacle glue. Projects will involve training/development in standard methods of molecular biology, such as gel-based techniques to characterize proteins (gel electrophoresis, Western Blotting, fluorescence staining) and quantitative polymerase chain reaction (qPCR) to measure the abundance of mRNA in barnacle tissues.

https://www.nrl.navy.mil/chemistry/research/6170/6176  
- Dates: Block 2  
- Eligible for PTE credit: yes  
- Qualifications: rising 1/C or 2/C, chem or engineering major. Experience in wet chemistry lab.  
- Funding: reimbursement for daily commutes from USNA.

8. Naval Research Laboratory, Washington, D.C.  

**Genetic Sequencing**  
The project will entail synthetic biology experiments geared toward developing a new genetic sequence that would allow for model bacteria to express a protein that can bind to specific targeted peptide sequences. The project will also entail the development of informatics mining approaches to be applied to proteomic and genomic sequence data already gathered from bacterial communities.

https://www.nrl.navy.mil/cbmse/  
- Dates: Block 1, 2, or 3.  
- Eligible for PTE credit: yes  
- Qualifications: rising 1/C or 2/C, STEM major.  
- Funding: reimbursement for daily commutes from USNA.  
- Application: Submit chemistry application to POC.  
- POC: CAPT Kennedy ikennedy@usna.edu

9. Naval Surface Warfare Center - Indian Head Division (NSWCIIH), Indian Head, Maryland.  

**Energetic Materials Research**  
Midshipmen will work with military and civilian scientists. A variety of research projects are available. They center around the synthesis and characterization of novel energetic materials, the testing and evaluation of circuit card assemblies of gun mounts, acquisition and inventory management, and modeling of explosions.

http://www.navsea.navy.mil/Home/WarfareCenters/NSWCIndianHeadEODTechnology.aspx  
- Dates: Block 1, 2, or 3.  
- Eligible for PTE credit: yes  
- Qualifications: rising 1/C or 2/C, DIV I or II majors, econ majors.  
- Funding: lodging & meals provided at NSWC-Indian Head.  
- Application: Submit chemistry application to POC.  
- POC: Prof McLean mcclean@usna.edu

10. Vanderbilt University, Nashville, Tennessee.  

**Multianalyte Microphysiometry Methods**  
The research involves the development of new multianalyte microphysiometry methods with applications in cancer, diabetes, and toxicology. This is done through electro-chemical detectors for many metabolic analytes into the microfluidic chamber to give a complete dynamical picture of the live cell population. Work is always progressing, but recent projects included glucose, choline, and glutamine detection. The midshipman will work on either fabricating the device or testing its detection capabilities.

http://www.vanderbilt.edu/chemistry/faculty/cliffel.php  
- Dates: any block. Block 0 + 1 is possible.  
- Eligible for PTE credit: yes  
- Qualifications: completion of SC261 & SC262.  
- Funding: fully funded.  
- Application: Submit chemistry application to POC.  
- POC: CDR Spencer jaspence@usna.edu
Medical Internships
The Chemistry Department also sponsors medical internships. Information can be found on the Chemistry Department Internship Webpage.

Other Internships
Visit the USNA internship website: http://intranet.usna.edu/AcResearch/Internships.php

Chemistry Department Internship Website: http://www.usna.edu/ChemDept/ChemMajor/internships.php

Chemistry Department Internship POC: Prof McClean (mcclean@usna.edu)

To Apply
Download the PDF application from http://www.usna.edu/ChemDept/ChemMajor/internships.php, complete and save it in the original PDF form, and forward it to the POC(s) of the chemistry internship(s) you are interested in. Note: Only one application needs to be completed for all the chemistry internships. Submit the same application to all of the POCs for chemistry internships you are interested in. If additional information is needed on an internship, contact the POC for that internship.