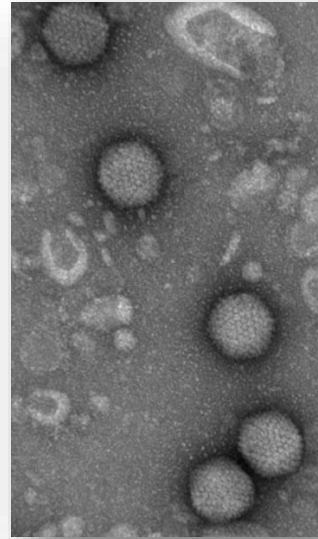
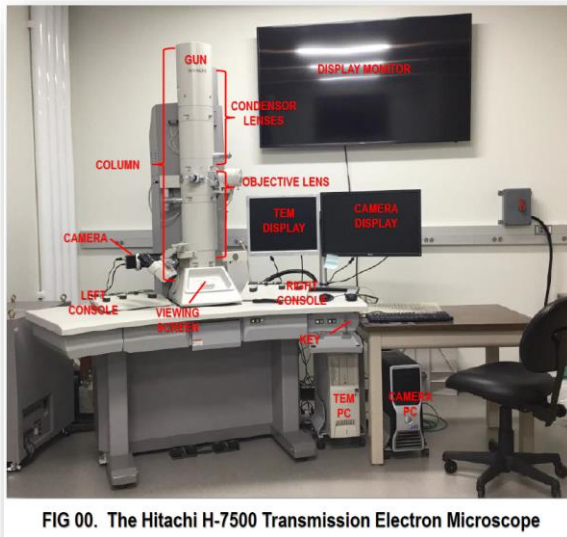


PROSPECTUS FOR TEM WORKSHOP, 22-24 FEBRUARY 2019

Title: Biology 498. 1 cr. TEM Workshop: using transmission electron microscopy and negative staining to image viruses and bacteria.



Instructor: Sol Sepsenwol, Ph.D., Emeritus Professor of Biology, CBB326, ext. 4394. **Tentative dates:** Friday-Sunday, Feb 22-24, 2019, with 3 dates TBS for team tutorials (4 hr ea) and one date TBS for student presentations. **Limit:** 8 students. **Prerequisites:** Biology 160 & 130 and one other science course with a lab; students with Biol 333 (Microbiology), Biol 319 (Molecular Biology), Biol 314 (Cell Biology) or Chem 365 (Biochemistry) will be given preference.

Description: Our newly-installed Hitachi H-7500 transmission electron microscope (TEM) can create clear images at over 200,000X magnification. This is more than 150 times higher than the best light microscope -- good enough to see individual molecular assemblies in viruses and bacteria. In this new Workshop, students will learn how to prepare viruses and bacteria for TEM using a rapid technique called *negative staining*. Students will learn how to use the TEM and its digital camera system to look at their preparations. Following training sessions, the class will break up into tutorial teams to practice their TEM and camera skills on their own preparations. After this Workshop, students will have the option of using their training to pursue research projects with other Biology faculty members.

TENTATIVE WORKSHOP SCHEDULE

Friday afternoon, Feb 22: preparation of viral and bacterial suspensions, glow-discharging carbon-coated grids for the TEM.

Saturday, Feb 23: training in the alignment and use of the Hitachi TEM, training in the use of the AMT digital capture system. Two group tutorials with practice.

Sunday, Feb 24: Two 4-hour team tutorials (2 students ea) with student-prepared material.

Monday-Friday, Feb 25-28: Two independently-scheduled 3-hour team tutorials (2 students ea).

Class presentation: TBS during the week of 4-8 March: one evening presentation by Workshop students. Afterwards, Biology faculty will offer brief descriptions of their research projects that involve TEM that students might be interested in.