Macromolecule Detection Procedures:
(Adapted from Saint Joseph’s University BIO 165 Lab Manual by Forster et al, 2018)

PROTEIN (BIURET)

- To a clean test tube, add 3 mls of protein sample.
- Add 200 µl of Biuret to each tube.

LIPID (EMULSION TEST)

- To a clean test tube, add a few drops of oil.
- Add 2 mls of ethanol gently swirl the test tube to mix the contents. Let the test tube sit undistributed for 2-3 minutes
- Add 2 mls of water and gently swirl the test tube to mix the contents.

LIPID (SUDAN RED STAIN / MICROSCOPY)

- Take a slide of adipose (fat) tissue.
- Add a few drops of Sudan Red III stain. Allow the stain to sit for 3 minutes, then gently rinse with deionized water. Allow your slide to air dry (do not use bibulous paper).

NUCLEIC ACID (METHYLENE BLUE STAIN / MICROSCOPY)

- Take a clean glass slide and draw a circle the size of a nickel on the slide using a wax pencil.
- Scrape the inside of your cheek with a sterile swab. Gently smear the sample onto a clean glass slide.
- Heat fix your sample by passing the slide through the flame of a Bunsen burner.
- Cover smear with a few drops of methylene blue (indicator for acidic compounds, including DNA). Let it sit for 1 minute. Then rinse the slide with water till the run-off is clear.
- Dry your slide using bibulous paper. Insert slide into book and press gently. View your cells at 10X and 40X.
SIMPLE SUGARS (BENEDICT’s)

- To a clean test tube, add 3 mls of glucose (or other simple sugar) sample.
- Add 400 µl of Biuret to each tube.
- Heat the tubes in a water bath (70°C) for 3-5 minutes.

COMPLEX SUGARS (STARCH) (LUGOL’s IODINE)

- To a clean test tube, add 3 mls of starch sample.
- Add 400 µl of Lugol’s Iodine to each tube.