

Resources and Equipment in the CAES Department of Analytical Chemistry

The Department of Analytical Chemistry occupies the second floor of the Johnson-Horsfall Building, including over 3000 square feet of dedicated laboratory space (see Figures 2-6). The Department has all of the necessary equipment and resources to conduct surveillance of and research on contaminants in food, water, soil and other environmental matrices. A full equipment list is below, along with images (Figures 7-16), but resources include both gas and liquid chromatographs (GC, LC) with a range of detectors that are used for the quantitation of pesticides, toxins, solvents, petroleum-related contaminants and other chemicals such as polychlorinated biphenyls (PCBs) and select pharmaceuticals. The laboratory also has inductively coupled plasma (ICP) with both optical emission spectroscopy (OES) and mass spectrometric (MS) detection that is used for the quantitation of elements such as lead, cadmium, arsenic in a range of environmental samples, food, and consumer products. The Department also has capability for enzyme-linked immunosorbent assay (ELISA) which enables analysis and quantitation of certain pesticides and toxins in food and environmental matrices. Specifically, the Department houses:

1. Four Agilent GC-MS (single quad) instruments; two of which have programmable temperature vaporization inlets or PTVs and a third has a multi-mode injection system.
2. One Thermo Ultra Triple Quad GC-MS/MS
3. One Thermo Velos LC-MS
4. One Thermo Exactive High Resolution LC-MS
5. One Thermo Q-Exactive High Resolution LC-MS
6. Two LC-FLD/DAD instruments (fluorescence detector/diode array detector)
7. One Agilent ICP-MS
8. One Agilent LC-ICP-MS
9. One Thermo ICP-OES
10. One Molecular Devices Scanwasher 400 with Jitterbug
11. In addition to this analytical equipment, we have two CEM Corp. Microwave systems (MSP 1000; MARS), an autoclave, centrifuges, and other basic laboratory infrastructure (ten fume hoods, distilled water system, refrigerator/freezers,...).



Exterior view of the main entrance to the Johnson-Horsfall building.



LABORATORY SPACE

Room 221 of the Johnson-Horsfall Building



Room 222 of the Johnson-Horsfall Building



Room 223 of the Johnson-Horsfall Building



Room 224 of the Johnson-Horsfall Building



Room 225 of the Johnson-Horsfall Building

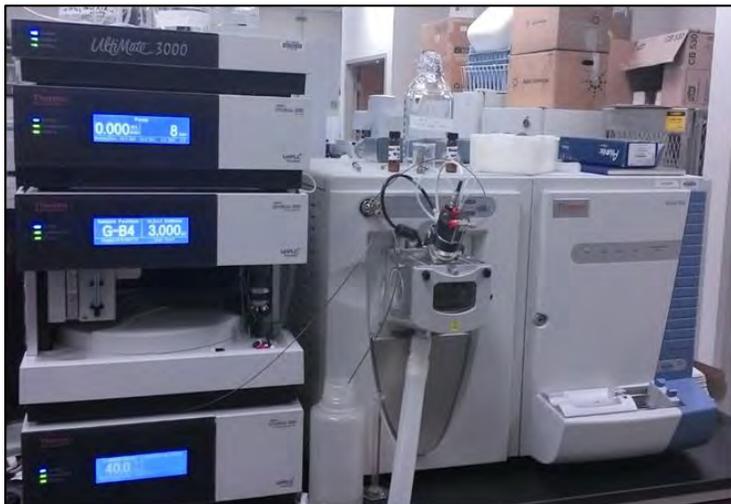
EQUIPMENT



Thermo Exactive High Resolution LC-MS



Thermo Q-Exactive High Resolution LC-MS



Thermo Velos Linear Ion Trap LC-MS



LC-UV and LC-FLD systems



Thermo Triple Quad GC-MS/MS



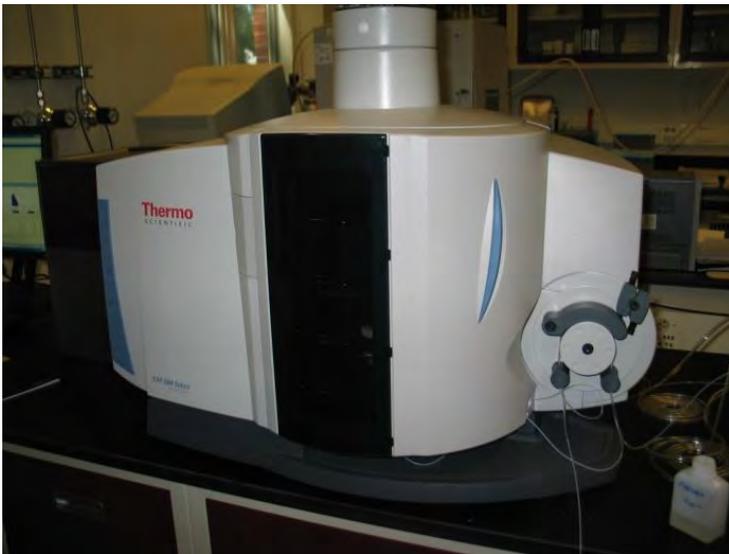
Agilent GC-MS (one of 4)



Agilent ICP-MS



Agilent LC-ICP-MS



Thermo ICP-OES



Spectramax M5 and Aqua
Max plate washer



Microwave extraction system
(one of two)



Autoclave



Jitterbug (ELISA)