

# ECE 438 Digital Signal Processing

## Week 6: Number Representation and Waveform Quantization

Date \_\_\_\_\_

Section \_\_\_\_

| Name    | Sign | Time spent outside lab |
|---------|------|------------------------|
| [    %] |      |                        |
| [    %] |      |                        |

### Grading Rubric (Fall 2019)

|   | below expectations | lacks in some respect | meets all expectations |
|---|--------------------|-----------------------|------------------------|
| Completeness of the report  |                    |                       |                        |
| Organization of the report<br><i>One-sided, with cover sheet, answers are in the same order as questions in the lab, copies of the questions</i>                                |                    |                       |                        |
| Quality of figures<br><i>Correctly labeled with title, x-axis, y-axis, and name(s)</i>  |                    |                       |                        |
| Understanding and implementation of uniform quantizer (45 pts)<br><i>Image: original and quantized images, comparison, questions</i><br><i>Audio: matlab figures, questions</i> |                    |                       |                        |
| Understanding of error analysis (35 pts)<br><i>Error histograms, correlation, PSNR, rate-distortion curve, questions</i>  |                    |                       |                        |
| Understanding of max quantizer (20 pts)<br><i>Histograms, PSNR, comparison with uniform quantizer</i>   |                    |                       |                        |