

# NLD - Non-Linear Dynamic Chaos

## Signature Sheet

Student's Name \_\_\_\_\_ Partner's Name \_\_\_\_\_

### Pre-Lab Discussion Questions

It is your responsibility to discuss this lab with an instructor before your first day of your scheduled lab period. This signed sheet must be included as the first page of your report. Without it you will lose grade points. You should be prepared to discuss at least the following before you come to lab:

1. What is Non-linear Dynamics (NLD)? Specifically what is it that is non-linear?
2. What is chaos? What are the defining characteristics of chaos?
3. Present and solve on the board the problems 9.3.1 and 11.4.2 in [Ref. 1](#).
4. What is the Feigenbaum ratio? What does it mean? See the Wolfram Math World subjects for help: [Feigenbaum](#) and [Chaos](#).
5. What is a return map? What is a Poincar map?
6. What is a Fourier Transform? What does the power spectrum of a square wave look like? What is aliasing?

Staff Signature \_\_\_\_\_ Date \_\_\_\_\_

Completed before the first day of lab? (Circle one) Yes / No

### Mid-Lab Discussion Questions

1. On day 4 of this lab, demonstrate the Cobweb VI that you wrote, showing regions of chaos and periodicity.

Staff Signature \_\_\_\_\_ Date \_\_\_\_\_

Completed by day 4 of lab? (Circle one) Yes / No

## Checkpoint Signatures

1. DFT Window Units

Staff Signature \_\_\_\_\_

2. Cob Web Program

Staff Signature \_\_\_\_\_

3. Liapunov Exponent Program

Staff Signature \_\_\_\_\_

4. Henon Map

Staff Signature \_\_\_\_\_

5. Bouncing Ball and PN-Junction Circuits

Staff Signature \_\_\_\_\_