

# Advanced Operating Systems:

## Lab 1 – Getting Started with Kernel Tracing / I/O

### L41 Assignment

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2021-2022

Your lab report will compare several configurations of the benchmark, exploring (and explaining) performance differences between them, as well as the impact of the probe effect arising from DTrace use.

#### Submitting your completed assignment

Your submitted lab report will be a single PDF file using the the L41 lab-report LaTeX provided. All submissions are via the course's Moodle page.

## 1 Experimental questions

Please answer the following questions in your report:

- Holding the total I/O size constant (16MB), how does varying I/O buffer size affect IO-loop performance? Include an annotated performance plot identifying key inflection points and behaviors that you can refer to in your description.
- Using DTrace, explore and describe potential causes for those performance behaviours, continuing to refer to inflection points and behaviours in the plot. Start that exploration using the `profile` provider.
- Identify and explain any performance behaviors or anomalies that seem to contradict the stated hypotheses regarding growing and stabilising performance.
- Explore the impact of the probe effect on your causal investigation; how has DTrace changed the behaviour of the benchmark, and does it invalidate your analysis above?