

# Session 4

The fourth session of the LSSTC DSFP focuses on statistics.

## Schedule

### Day 0 — Introduction for the New Cohort

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Sunday, Sep 17, 2017

- 09:00 AM - 10:00 AM o Registration
- 10:00 AM - 10:30 AM o Welcome and Introduction to DSFP; L. Walkowicz [:octocat:](#)
- 10:30 AM - 12:00 PM o [Introduction to LSST](#); L. Walkowicz [:octocat:](#)
- 12:00 PM - 12:15 PM o [Goals of the DSFP](#); A. Miller [:octocat:](#)
- 12:15 PM - 01:30 PM o LUNCH
- 01:30 PM - 03:00 PM o [A \(too\) Brief Introduction to Visualization](#); A. Miller [:octocat:](#) — — [Problems](#), [Solutions](#)
- 03:00 PM - 03:30 PM o Break
- 03:30 PM - 05:30 PM o [An Introduction to machine-learning](#); A. Miller [:octocat:](#) — — [Problems](#), [Solutions](#)

### Day 1 — An Introduction to Probability Theory

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Monday, Sep 18, 2017

- 08:00 AM - 09:00 AM o Registration
- 09:00 AM - 09:30 AM o Introduction of Cohort 2 and the new instructors
- 09:30 AM - 10:30 AM o [Fitting a Line to Data I](#); A. Miller [:octocat:](#) — — [Solutions](#)
- 10:30 AM - 11:00 AM o Break
- 11:00 AM - 12:00 PM o Fitting a Line to Data II; A. Miller [:octocat:](#)
- 12:00 PM - 01:30 PM o LUNCH
- 01:30 PM - 02:30 PM o [Probability — — Frequentist vs. Bayesian Perspectives](#); M. Juric [:octocat:](#)
- 02:30 PM - 04:00 PM o Problem: Probability Theory; M. Juric [:octocat:](#) — — [Part II](#), [Part III](#)
- 04:00 PM - 04:30 PM o Break
- 04:30 PM - 06:00 PM o [But Is It Likely? How to Choose An Appropriate Likelihood](#); Z. Ivezić [:octocat:](#)

## Day 2 — Introduction to Bayesian Analysis

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Tuesday, Sep 19, 2017

- 09:00 AM - 10:00 AM o [An Introduction To Gaussian Process Regression](#); S. Aigrain [:octocat:](#)
- 10:00 AM - 10:30 AM o Break
- 10:30 AM - 12:00 PM o [Problem - Building a GP Model](#); S. Aigrain [:octocat:](#) — — [Solutions](#)
- 12:00 PM - 01:30 PM o LUNCH
- 01:30 PM - 04:00 PM o [A Practical Guide to MCMC](#); A. Connolly [:octocat:](#)
- 02:30 PM - 04:00 PM o [Intro to PyMC](#), [Practical MCMC Problems](#); A. Connolly [:octocat:](#)
- 04:00 PM - 04:30 PM o Break
- 04:30 PM - 06:00 PM o [Generative Models](#); A. Mantz [:octocat:](#) — — [Solutions](#)
- 06:00 PM - ??:?? PM o Group dinner

## Day 3 — Advanced GP Regression

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Wednesday, Sep 20, 2017

- 09:00 AM - 10:00 AM o [Making GPs Work For You](#); S. Aigrain [:octocat:](#)
- 10:00 AM - 10:30 AM o Break
- 10:30 AM - 12:00 PM o [Problem - implementation of common GP packages](#); S. Aigrain [:octocat:](#) — — [Solutions](#)
- 12:00 PM - 12:30 PM o [GPs in Action](#); S. Aigrain [:octocat:](#)
- 12:30 PM - ??:?? PM o BREAK

## Day 4 — Hierarchical Bayesian Models

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Thursday, Sep 21, 2017

- 09:00 AM - 10:00 AM o Introduction to Hierarchical Bayesian Models; M. Shabram [:octocat:](#)
- 10:00 AM - 10:30 AM o Break
- 10:30 AM - 12:00 PM o Problem - Building an HBM; M. Shabram [:octocat:](#)
- 12:00 PM - 01:30 PM o LUNCH
- 01:30 PM - 04:00 PM o Practical HBM; M. Shabram [:octocat:](#)
- 04:00 PM - 04:30 PM o Break
- 04:30 PM - 06:00 PM o [Missing Information and Selection Effects: Challenges for Astronomers](#); A. Mantz [:octocat:](#)

# Day 5 — Bayes is Hard; Science Communication

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Friday, Sep 22, 2017

- 09:00 AM - 10:00 AM o [Model Selection](#); A. Mantz [:octocat:](#)
- 10:00 AM - 10:30 AM o Break
- 10:30 AM - 12:00 PM o [Problem — Calculating the Bayes Factor](#); A. Mantz [:octocat:](#) — — [Solutions](#)
- 12:00 PM - 01:30 PM o LUNCH
- 01:30 PM - 02:00 PM o Confined Communication: Discussing Science in an Elevator; L. Walkowicz [:octocat:](#) & A. Miller [:octocat:](#)
- 02:00 PM - 05:30 PM o Hack Session
- 05:30 PM - 06:00 PM o Hack tag-up & Meeting wrap up