





Unit 0. Course Overview, Syllabus, Guidelines, and Homework on Prerequisites

Course overview

No problem scores in this section

edX Tutorial

No problem scores in this section

Discussion forum and collaboration guidelines

No problem scores in this section

Homework mechanics and standard notation

Practice Scores: 0/0 0/0 0/0 0/0 0/0 0/0 0/0

Micromasters, Certification, and Honor Pledge

Practice Scores: 0/0

Homework 0: Probability and Linear algebra Review (49/53) 92%

Homework *due Feb 20, 2019 07:59 CST*

3/3 **Problem Scores:** 1/1 2/3 0/1 1/2 0/0 0/1 2/2 4/4 1/1 1/1 4/4 0/0 0/0 0/0 0/0 3/3 6/6 0/0 0/0 0/0 0/0 0/0

Entrance Survey

Entrance survey

No problem scores in this section

Unit 1 Introduction to statistics

Lecture 1: What is statistics (13/15) 87%

Exercises due Feb 20, 2019 07:59 CST

Problem Scores: 1/1 2/2 2/2 2/2 1/1 1/1 1/1 1/2 0/1 1/1 0/0

1/1

Lecture 2: Probability Redux (26.5/33) 80%

Exercises due Feb 20, 2019 07:59 CST

Problem Scores: 2/3 1/1 0/1 4/4 2/2 1/1 0/1 1/1 1/1 0/1 1/1 0/1 1/1 1/1 0/1 1/1

Unit 2 Foundation of Inference

| Lecture 3: P | arame | etric St | atistic | al Mod | lels (23 | /24) 96% | 6 | | | | |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|-----------------|
| Exercises due Fel | 28, 2019 | 07:59 CST | - | | | | | | | | |
| Problem Scores: 2/2 2/2 | 1/1 1/1 | 1/1 1/1 | 1/1 1/1 | 1/1 1/1 | 2/2 0/1 | 4/4 | 1/1 | 0/0 | 2/2 | 1/1 | 1/1 |
| Lecture 4: P | arame | etric Es | <u>timati</u> | on and | d Confi | dence | Interv | als (22/ | 26) 85% | | |
| Exercises due Fel | 28, 2019 | 07:59 CST | - | | | | | | | | |
| Problem Scores: 1/1 4/4 | 1/1 1/1 | 1/1 2/2 | 0/1 2/2 | 1/1 3/3 | 1/1 3/3 | 0/0 | 1/1 | 1/1 | 0/1 | 0/1 | 0/1 |
| Recitation 1 | . Conf | <u>idence</u> | Interv | vals of | the me | ean of | Gaussi | ian ran | idom v | ariable | <u>es</u> |
| No problem scor | es in this | section | | | | | | | | | |
| Homework | 1: Esti | mation | <u>, Conf</u> | fidence | e Interv | <u>/al, Mc</u> | des of | Conve | ergence | <u>(</u> 38/45 |) 84% |
| Homework due F | eb 28, 20 | 19 07:59 C | ST | | | | | | | | |
| Problem Scores: 2/2 0/1 | 4/4 2/2 | 2/4 2/2 | 2/2 1/2 | 1/2 0/1 | 0/0 4/4 | 1/1 3/3 | 1/1 3/3 | 2/2 2/2 | 2/3 1/1 | 2/2 | 1/1 |
| Lecture 5: D | elta M | <u>1ethod</u> | and C | onfide | nce In | tervals | <u>(</u> 28/33) | 85% | | | |
| Exercises due Ma | ır 6, 2019 | 07:59 CST | | | | | | | | | |
| Problem Scores: 1/1 0/1 | 1/1 1/1 | 0/1 1/1 | 0/1 6/6 | 0/1 1/1 | 2/2 1/1 | 3/3 1/1 | 2/2 | 3/4 | 1/1 | 3/3 | 1/1 |
| Recitation 2 variables No problem score | | | Interv | vals of | <u>the sh</u> | <u>ift of s</u> | <u>hifted</u> | <u>expon</u> | <u>ential r</u> | andor | <u>n</u> |
| Homework 2: Statistical Models, Estimation, and Confidence Intervals (20/26) 77% | | | | | | | | | | | |
| Homework <i>due l</i> | Лar 6, 201 | 9 07:59 CS | 5T | | | | | | | | |
| Problem Scores: 1/1 3/3 | 0/1 4/4 | 2/2 | 0/2 | 2/2 | 2/2 | 0/0 | 1/2 | 1/3 | 0/0 | 3/3 | 1/1 |
| <u>Lecture 6: II</u> | ntrodu | iction t | <u>о Нур</u> | othesi | s Testi | ng, and | <u>d Type</u> | <u>1 and </u> | <u>Type 2</u> | Errors | <u>(</u> 47/51) |
| Exercises due Ma | ır 14, 201: | 9 07:59 CS | Τ | | | | | | | | |
| Problem Scores: 1/1 1/1 1/1 | 1/1 1/1 4/4 | 2/2 3/3 3/3 | 1/2 3/3 1/1 | 2/2 1/1 1/1 | 1/1 1/1 3/3 | 1/1 1/1 1/1 | 1/1 1/1 0/1 | 1/1 1/1 2/2 | 1/1 1/1 0/1 | 0/0 1/1 | 0/1 3/3 |
| Lecture 7: F | lynoth | osis Ta | sting | (Contir | med). | l avals | and P | عميادي | . (34/38) | 20% | |
| Exercises due Ma | | | _ | (<u>COIICII</u> | <u>iueu).</u> | LEVEIS | and F- | values | <u>(</u> 34/30) | 0370 | |
| Problem Scores: | | 0/1 | , 5/5 | 2/2 | 1/1 | 1/1 | 4/4 | 1/2 | 2/2 | 3/3 | 0/1 |
| 3/3 3/3 | 1/1 | 1/1 | 1/1 | 4/4 | 1/1 | 0/1 | -1/ -1 | 1,2 | 2,2 | 3/3 | 0/1 |
| Recitation 3 | 3: Intro | ductio | n to H | <u>ypothe</u> | esis Te | sting | | | | | |
| No problem scor | es in this | section | | | | _ | | | | | |
| Homework | 3. Intr | oducti | nn to l | Hynoth | nesis Ta | esting | (35/38) (| 92% | | | |
| Homework due I | | | | <u>.,y.poti</u> | <u> 1 (</u> | <u> </u> | ָ (טרורר) | J∠ /U | | | |
| Problem Scores: | • | 1/1 | ىد. 1/1 | 3/3 | 2/2 | 1/1 | 0/2 | 2/2 | 2/2 | 1/1 | 1/1 |
| 1/1 3/3 | 1/1 | 3/3 | 1/1 | 4/4 | 1/1 | 2/2 | 2/2 | 2/2 | <i>L</i> | 1/ 1 | 1/1 |
| | | | | | | | | | | | |

Unit 3 Methods of Estimation

| | Problem Scores: 1/1 1/1 1/1 1/1 0/1 1/1 2/2 | 1/1 | 1/1 2/3 1/1 | 4/4 2/2 | 1/1 1/1 | 1/1 0/1 | 1/1 2/2 | 1/1 1/1 | 1/1 1/1 | 1/1 1/1 | 1/1 3/3 | |
|---|--|--------------------|-------------------|----------------|----------------|------------------|-----------------|-----------------|------------------|-----------------|---------------|--|
| | Recitation 4: Dis | stance m | neasur | es betv | ween c | <u>listribu</u> | <u>ıtions</u> | | | | | |
| | No problem scores in t | his section | | | | | | | | | | |
| | <u>Lecture 9: Intro</u> | duction | to Max | <u>kimum</u> | Likelił | nood E | stimati | ion (45) | /47) 96% | ó | | |
| | Exercises due Mar 21, 2 | | | | | | | | | | | |
| | Problem Scores: 2/2 3/3 4/4 0/0 | | 1/1 0/1 | 1/1 1/1 | 1/1 3/3 | 4/4 5/5 | 4/4 3/3 | 1/1 3/3 | 1/1 | 1/1 | 2/3 | |
| | Homework 4: T | | | <u>Diverg</u> | <u>ence, a</u> | ınd Int | <u>roduct</u> | ion to | MLE (2 | 6/29) 90 |)% | |
| | Problem Scores: 1/1 1/1 3/3 4/4 | I 1/1 | 1/2 1/1 | 0/1 1/1 | 3/3 | 2/2 | 1/1 | 1/1 | 0/1 | 3/3 | 2/2 | |
| | Lecture 10: Con | <u>sistency</u> | of ML | <u>E, Cova</u> | ariance | <u>Matri</u> | <u>ces, an</u> | ıd Muli | <u>tivaria</u> 1 | te Stat | <u>istics</u> | |
| | (37/41) 90% Exercises <i>due Mar 28, 2</i> | 019 07:59 C | ST | | | | | | | | | |
| | Problem Scores: 1/1 2/2 4/4 4/4 | 1/1 | 0/1 1/1 | 0/1 1/1 | 1/1 4/4 | 2/2 1/1 | 1/1 1/1 | 1/1 0/0 | 1/1 1/1 | 1/3 4/4 | 1/1 | |
| | Recitation 5: Ma | | <u>Likelih</u> | ood Es | <u>stimati</u> | on: Inf | erence | for th | e varia | nce of | <u>f a</u> | |
| | No problem scores in t | | | | | | | | | | | |
| | Homework 5: M | | | hood E | stimat | t ion (16 | 5/19) 849 | % | | | | |
| | Problem Scores: 1/1 2/2 1/1 2/4 | | <i>CST</i> 1/1 | 1/1 | 1/1 | 1/1 | 0/1 | 1/1 | 1/1 | 1/1 | 2/2 | |
| | | | | | | N.I. | -124 - 1 | | na /! | | | |
| | <u>Lecture 11: Fish</u> (41/44) 93% | <u>er Inforr</u> | <u>mation</u> | <u>, Asym</u> | <u>iptotic</u> | <u>Norm</u> | <u>ality of</u> | MLE; | <u>Metho</u> | d of M | <u>oments</u> | |
| | Exercises due Apr 4, 20 | 19 07:59 CST | - | | | | | | | | | |
| | Problem Scores: 3/3 1/1 1/1 1/1 1/1 1/1 1/1 | 3 1/2 2/2 | 0/1 3/3 | 2/2 2/2 | 1/1 2/2 | 1/1 3/3 | 1/1 2/2 | 1/1 1/1 | 3/4 2/2 | 1/1 2/2 | 1/1 1/1 | |
| | Recitation 6: ML | .Ε for Μι | ultinon | <u>nials</u> | | | | | | | | |
| | No problem scores in t | | | | | | | | | | | |
| | Lecture 12: M-Es | | | 7) 94% | | | | | | | | |
| | Problem Scores: 1/1 1/1 3/3 4/4 | | 2/3 1/1 | 6/7 2/2 | 1/1 1/1 | 1/1 2/2 | 3/3 0/1 | 4/4 1/1 | 2/2 1/1 | 1/1 1/1 | 3/3 | |
| | Homework 6 Ma | | | nood E | <u>stimat</u> | ion and | d Meth | od of I | <u>Momei</u> | nts (51/ | ′54) 94% | |
| | Homework <i>due Apr 4, 2</i> Problem Scores: 3/3 | | ST 3/3 | 3/3 | 7/7 | 6/6 | 1/1 | 1/1 | 1/1 | 2/2 | 2/2 | |
| | 3/3 1/1 0/2 1/1 1/1 1/1 | 1/1 1/1 | 2/2 | 1/1 | 1/1 | 1/1 | 0/1 | 1/1 | 1/1 | 2/2 | 1/1 | |
| Midterm Exam 1 | Midterm Exam | <u>1 (</u> 22.5/28 | 8) 80% | | | | | | | | | |
| ··· - -· - -··· · | Midterm <i>due Apr 10, 20</i> | 19 07:59 CST | Τ | | | | | | | | | |
| | Problem Scores: 1/1 0/2 2/2 2/2 | l 1/1 0/1 | 0/1 1.5/3 | 1/1 1/1 | 2/2 1/1 | 2/2 1/1 | 1/1 | 1/1 | 2/2 | 2/2 | 1/1 | |
| | | | | | | | | | | | | |
| Unit 4 Hypothesis testing | | | | | | | | | | | | |
| cesung | | | | | | | | | | | | |
| | | | | | | | | | | | | |

<u>Lecture 8: Distance measures between distributions (37/41) 90%</u>

Exercises *due Mar 21, 2019 07:59 CST*

| No problem scoi | : T-tes | | | | | | | | | | |
|--|------------------|----------------|-----------------|------------------|------------------|--------------------------|----------------|------------------|------------|-----------------|----------------|
| <u>-ecture 14:</u> 93% | <u>Wald's</u> | s Test, | Likelih | nood R | atio Te | est, and | <u>l Impli</u> | <u>cit Hyp</u> | othes | is Test (| (26/28) |
| Exercises <i>due Ap</i> | - 18. 2019 | 07:59 CS | Т | | | | | | | | |
| Problem Scores: 2/2 1/1 | | 0/0 1/1 | 1/1 1/1 | 4/4 2/2 | 1/1 2/2 | 2/2 | 1/1 | 1/1 | 0/1 | 2/3 | 3/3 |
| Recitation 9 | : Walc | l's test | and L | <u>ikeliho</u> | od Rat | io Test | - <u>-</u> | | | | |
| No problem scoi | es in this | section | | | | | | | | | |
| Homework | 7 (27/2 | 9) 93% | | | | | | | | | |
| Homework <i>due A</i> | | | CST | | | | | | | | |
| Problem Scores: 2/2 1/1 | 1/1 1/2 | 1/1 2/2 | 1/1 1/1 | 1/1 0/1 | 4/4 2/2 | 2/2 1/1 | 1/1 | 1/1 | 2/2 | 1/1 | 2/2 |
| _ecture 15: | <u>Goodr</u> | ness of | f Fit Te | st for I | <u> Discret</u> | e Distr | <u>ibutio</u> | <u>ns (</u> 27/3 | 30) 90% | | |
| Exercises <i>due Ap</i> | | | | | | | | | | | |
| Problem Scores: 1/1 1/1 | 1/1 1/1 | 1/1 1/1 | 2/3 2/2 | 0/1 1/1 | 2/2 1/1 | 3/3 3/3 | 3/3 | 1/1 | 1/2 | 1/1 | 1/1 |
| _ecture 16: | Goodr | <u>ness of</u> | Fit Te | sts Coı | ntinue | d: Kolm | nogoro | v-Smir | nov te | <u>st, Kolr</u> | <u>nogorov</u> |
| <u>_illiefors te</u> : | <u>st, Qua</u> | antile-0 | <u>Quanti</u> | ile Plot | <u>s (</u> 36/42 | 2) 86% | | | | | |
| exercises due Ap | | | | F /F | 2 /2 | 2/2 | 272 | 1 /1 | 0./1 | 1 /1 | 2 /2 |
| Problem Scores: 2/2 0/1 | 3/3 1/1 | 0/1 2/2 | 1/1 1/1 | 5/5 1/1 | 3/3 0/1 | 2/2 1/1 | 3/3 1/1 | 1/1 1/2 | 0/1 0/1 | 1/1 4/4 | 3/3 |
| Homework due A Problem Scores: //1 1/1 | pr 24, 20 | • | CST 0/1 | 2/3 | 0/1 | 2/2 | 2/2 | 2/2 | 1/1 | 1/1 | 1/1 |
| _ecture 17: | Introd | luctior | ı to Ba | vesian | Statist | tics (49 <i>)</i> | (56) 88% |) | | | |
| exercises <i>due Ma</i> | | | | , <u> </u> | | ` | , | | | | |
| Problem Scores: 1/1 5/6 | 1/1 8/9 | 0/1 2/2 | 1/1 0/1 | 4/5 1/1 | 7/7 4/4 | 1/1 2/2 | 1/1 0/1 | 1/1 1/1 | 3/3 1/1 | 2/2 3/3 | 0/1 |
| _ecture 18: | J <u>effre</u> y | <u>/s Prio</u> | r and I | <u>Bayesia</u> | an Con | fidenc | <u>e Inter</u> | <u>val (</u> 28 | /33) 85% | 6 | |
| exercises due Ma | = | | | 1 /1 | 2/2 | 1 /1 | 1 /1 | 2./2 | 0./1 | 0./1 | 272 |
| Problem Scores: 3/3 1/1 | 1/1 2/3 | 0/0 1/1 | 1/1 1/1 | 1/1 1/1 | 2/2 4/4 | 1/1 3/4 | 1/1 1/2 | 2/2 | 0/1 | 0/1 | 2/2 |
| 0/5 1/1 | 1: Mu | ltinom | <u>ial Ba</u> y | <u>esian</u> | <u>Estima</u> | <u>ition</u> | | | | | |
| Recitation 1 | es in this | section | - | | | | | | | | |
| , | | | Statist | <u>ics (</u> 41/ | 44) 93% | | | | | | |
| Recitation 1 | <u>9: Bay</u> | <u>esian S</u> | | | | | | | | | |
| Recitation 1 | | | | | | | | | | | |
| Recitation 1 | | | | 1/1 3/3 | 2/2 2/3 | 4/4 3/3 | 2/2 2/3 | 2/2 | 2/2 | 2/2 | 1/1 |

<u>Lecture 13: Chi Squared Distribution, T-Test</u> (25/29) 86%

2/2 1/1

0/1

2/3 1/1

2/2 3/3

2/2 3/3

Exercises due Apr 18, 2019 07:59 CST

Problem Scores: 1/1 4/4 1/1 2/2

Unit 5 Bayesian

statistics

Problem Scores: 1/1 1/1 1/1 1/1 1/1 1/1 1/1 0.67/1 1/1 1/1 1/1 1/2 0/1 1/1 2/2 2/2 5/5 5/5 1/1 1/1 1/1 <u>Supplementary Recitation: Jeffreys Prior in Higher Dimension</u> No problem scores in this section Unit 6 Linear Lecture 19: Linear Regression 1 (27/29) 93% Exercises due May 16, 2019 19:59 CST Regression Problem Scores: 1/1 2/2 1/1 4/4 1/1 1/1 1/1 1/1 1/1 1/1 1/1 1/1 1/1 1/1 1/1 0/1 2/2 1/2 Lecture 20: Linear Regression 2 (37/40) 92% Exercises *due May 16, 2019 19:59 CST* Problem Scores: 2/2 3/3 5/5 2/2 1/1 6/6 1/1 3/3 1/1 2/2 1/1 2/2 1/1 1/1 1/1 1/1 Recitation 13: Hypothesis Test for Linear Regression No problem scores in this section Recitation 14: Multiple Hypothesis Testing and Bonferroni Correction No problem scores in this section **Recitation 15: Ridge Regression** No problem scores in this section Homework 10 Linear regression (24/25) 96% Homework *due May 16, 2019 19:59 CST* Problem Scores: 2/2 3/3 1/2 1/1 1/1 5/5 1/1 3/3 2/2 1/1 1/1 2/2 Unit 7 Generalized Lecture 21: Introduction to Generalized Linear Models; Exponential Families (37/38) 97% Linear Models Exercises due May 24, 2019 07:59 CST Problem Scores: 2/3 2/2 3/3 1/1 2/2 4/4 3/3 Lecture 22: GLM: Link Functions and the Canonical Link Function (8/9) 89% Exercises due May 24, 2019 07:59 CST Problem Scores: 1/1 0/0 1/1 1/1 0/1 2/2 1/1 1/1 Recitation 16: Poisson and Gamma Generalized Linear Models No problem scores in this section Recitation 17: Hypothesis Test for Logistic regression No problem scores in this section Homework 11 (38/39) 97% Homework due May 24, 2019 07:59 CST Problem Scores: 5/5 2/2 2/3 1/1 5/5 3/3 5/5 2/2 2/2 **Exit Survey** <u>Exit survey</u> No problem scores in this section Final exam <u>Final Exam</u> (45.5/52) 88% Final due Jun 4, 2019 07:59 CST Problem Scores: 1/1 0/1 1/1 2/2 2/3 1/1 0/0 2/2 7/7 6/6 1/3 2/2 2/2 2/2 0/1 3/3 0/1 1/1 1/1 1/1 0.5/1 (Optional) Unit 8 Principal component

<u>Midterm Exam 2 (</u>33.7/36) 94%

Midterm *due May 8, 2019 07:59 CST*

analysis

(Optional) Preparation Exercises for Principal Component Analysis (48/54) 89% optional *due Jun 5, 2019 07:59 CST* **Practice Scores:** 3/3 3/3 1/1 3/3 3/3 2/2 2/2 1/1 1/1 1/1 6/6 2/2 1/1 5/5 1/3 6/6 1/1 2/3 0/2 0/1 4/4 (Optional) Lecture 23: Principal Component Analysis (3/22) 14% optional *due Jun 5, 2019 07:59 CST* Practice Scores: 1/1 0/1 0/1 0/1 0/1 0/3 0/4 0/2 1/1 1/1 0/2 0/1 0/1 0/1 0/1 (Optional) Recitation 10: Principal Component Regression

Until Next Time

Until Next Time

No problem scores in this section

No problem scores in this section