StaCIA's Mom

By: Makena Kong, Whitney Larsen,
Pierre Lucas, Kevin Sanchez

CAL POLY

Statistics Department

College of Science and Mathematics

Major, Minors, Curricula

Source

CAL POLY | Statistics
College of Science a

Home | Our Program | Academics | Current Stu

Home : Academics

Academics

The Statistics Department is a strictly undergradu

Majors:

- Bachelors of Science in Statistics

Minors and Certificates:

- Statistics Minor
- Actuarial Preparation Minor
- Cross Disciplinary Studies Minor in Data Scie
- SAS Certificate Program

Course Information:

- Course Offerings
- Catalog Course Descriptions
- Expanded Course Outlines (ECOs)

https://statist

CAL POLY | 20

Catalog Home | Catalog Contents

Catalog Home : Colleges and Programs : Coll

BS Statistics

Program Learning Objective

1. Have good working knowledge
   and omnipresent role of variabi
   exploratory data analysis, and fi
2. Have background in probability,
   and symbolic and abstract think
3. Be able to synthesize and apply
   procedures and appropriate cor
4. Communicate effectively (writte
   teamwork, and in organizing an
5. Have a good mastery of several
   strategies.
6. Have a focused concentration i

Degree Requirements and C

In addition to the program requiremer
detail in the Minimum Requirements f

- 60 units of upper division cours
- Graduation Writing Requiremer
- 2.0 GPA
- U.S. Cultural Pluralism (USCP)

Note: No course with a STAT prefix ma

MAJOR COURSES	
STAT 150	Introduc
MATH 141	Calculus
MATH 142	Calculus
MATH 143	Calculus
MATH 206	Linear Al
MATH 241	Calculus
STAT 301	Statistics

Skip to Content ? | Current Students | Prospective Students | Parents | Business Community | Fa

CAL POLY | 2019-2020 Catalog

Catalog Home | Catalog Contents | Colleges & Departments | Programs A-Z | Courses A-Z | Degree

Catalog Home : Courses A-Z : Statistics (STAT)

Statistics (STAT)

STAT | How to Read Course De

STAT Courses

STAT 130. Statistical Reasoning.
GE Area B1
Term Typically Offered: F, W, SP
Prerequisite: MATH 96; or MATH 115; or appropriate Math Placement Level.

Survey of statistical ideas and philosophy. Emphasis on concepts rather than in-depth coverage of statistical
Topics include sampling, experimentation, data exploration, chance phenomena, and methods of statistical
Not open to students with credit in any statistics course. 4 lectures. Fulfills GE Area B1; for students admitte
or later, a grade of C- or better in one GE Area B1 course is required to fulfill GE Area B.

STAT 150. Introduction to the Discipline of Statistics.
Term Typically Offered: F
Prerequisite: freshman and statistics major.

Orientation to the statistics program, introduction to the discipline of statistics, including the development
discipline, professional ethics, data visualization and the role of statistics in the scientific enterprise. 2 lectur

STAT 200. Special Problems for Undergraduates.
Term Typically Offered: F, W, SP

Data Sustainer

beautifulsoup4 4.7.1

```
pip install beautifulsoup4
```

PyMySQL 0.5

```
pip install PyMySQL==0.5
```

Database

degree

```
id: INTEGER AUTO_INCREMENT
title: VARCHAR(10) NOT NULL
programname: VARCHAR(50)
totalunits: NUMBER NOT NULL
requiredcoursesunits: INTEGER NOT NULL
techelectiveunits: INTEGER
supportcourseunits: INTEGER
freeelectiveunits: INTEGER
geunits: INTEGER
requirements: VARCHAR(20)
                {GWR, USCP}
gpa: DECIMAL(2,1)

PRIMARY KEY (id)
```

course

```
id: INTEGER AUTO_INCREMENT
department: VARCHAR(4) NOT NULL
code: INTEGER NOT NULL
title: VARCHAR(100)
units: INTEGER
lectures: INTEGER
labs: INTEGER
quarters: VARCHAR(10)
gearea: CHAR(3)
prerequisites: VARCHAR(150)
grad: VARCHAR(20)
        {graduate, undergraduate}
division: VARCHAR(6)
          {upper, lower}
level: NUMBER
       {100,200,300,400,500}

PRIMARY KEY(id)
UNIQUE (department, code)
```

degree_courses

```
degree: INTEGER
course: INTEGER
fulfills: VARCHAR(20)
          {required, techelective, support, ge}

PRIMARY KEY (degree, course,fulfills)

FOREIGN KEY (degree)
  REFERENCES degree(id)
  ON DELETE CASCADE
FOREIGN KEY (course)
  REFERENCES course(id)
  ON DELETE CASCADE
```

Introductory_sequences

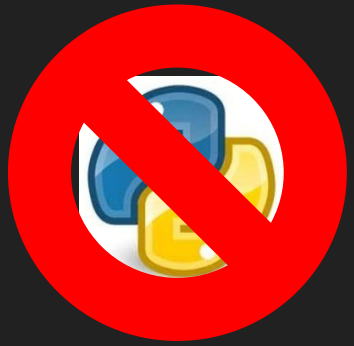
```
id: INTEGER
first: VARCHAR(12)
second: VARCHAR(12)
third: VARCHAR(12)

PRIMARY KEY(id)
```

gearea

```
id: INTEGER AUTO_INCREMENT
area: VARCHAR(10)
title: VARCHAR(50)

PRIMARY KEY(id)
```



Query Parser

Decided to ignore SciKit Learn and NLTK and decided to write the entire thing using

Regular Expressions

HOW Find our variables and mark them

WHY Lemmatization & Stemming weren't helpful

Relevance Detector

sklearn.neighbors.KNeighborsClassifier

class sklearn.neighbors. **KNeighborsClassifier** (*n_neighbors=5, weights='uniform', algorithm='auto', leaf_size=30, p=2, metric='minkowski', metric_params=None, n_jobs=None, **kwargs*) [source]

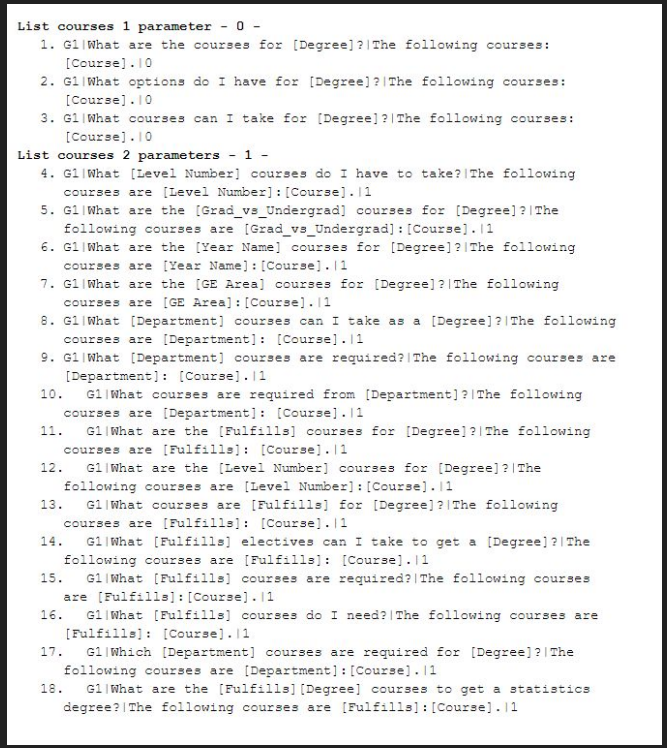
Parameters

N_neighbors = 5

Metric: "minkowski"

Making it Work

1. Group our questions by similar inputs/outputs.
2. Give each group a label.
3. Train our model!!!



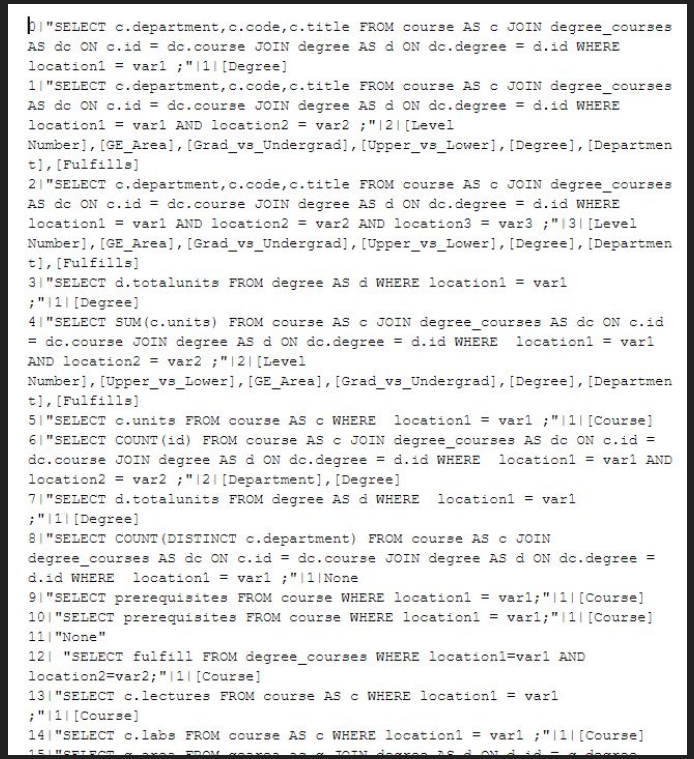
List courses 1 parameter - 0 -

1. G1|What are the courses for [Degree]?|The following courses: [Course].|0
2. G1|What options do I have for [Degree]?|The following courses: [Course].|0
3. G1|What courses can I take for [Degree]?|The following courses: [Course].|0

List courses 2 parameters - 1 -

4. G1|What [Level Number] courses do I have to take?|The following courses are [Level Number]:[Course].|1
5. G1|What are the [Grad_vs_Undergrad] courses for [Degree]?|The following courses are [Grad_vs_Undergrad]:[Course].|1
6. G1|What are the [Year Name] courses for [Degree]?|The following courses are [Year Name]:[Course].|1
7. G1|What are the [GE Area] courses for [Degree]?|The following courses are [GE Area]:[Course].|1
8. G1|What [Department] courses can I take as a [Degree]?|The following courses are [Department]: [Course].|1
9. G1|What [Department] courses are required?|The following courses are [Department]: [Course].|1
10. G1|What courses are required from [Department]?|The following courses are [Department]: [Course].|1
11. G1|What are the [Fulfills] courses for [Degree]?|The following courses are [Fulfills]: [Course].|1
12. G1|What are the [Level Number] courses for [Degree]?|The following courses are [Level Number]:[Course].|1
13. G1|What courses are [Fulfills] for [Degree]?|The following courses are [Fulfills]: [Course].|1
14. G1|What [Fulfills] electives can I take to get a [Degree]?|The following courses are [Fulfills]: [Course].|1
15. G1|What [Fulfills] courses are required?|The following courses are [Fulfills]:[Course].|1
16. G1|What [Fulfills] courses do I need?|The following courses are [Fulfills]: [Course].|1
17. G1|Which [Department] courses are required for [Degree]?|The following courses are [Department]:[Course].|1
18. G1|What are the [Fulfills][Degree] courses to get a statistics degree?|The following courses are [Fulfills]:[Course].|1

Interpreting Predictions



```
0|"SELECT c.department,c.code,c.title FROM course AS c JOIN degree_courses
AS dc ON c.id = dc.course JOIN degree AS d ON dc.degree = d.id WHERE
location1 = var1 ;"|1|[Degree]
1|"SELECT c.department,c.code,c.title FROM course AS c JOIN degree_courses
AS dc ON c.id = dc.course JOIN degree AS d ON dc.degree = d.id WHERE
location1 = var1 AND location2 = var2 ;"|2|[Level
Number],[GE_Area],[Grad_vs_Undergrad],[Upper_vs_Lower],[Degree],[Departmen
t],[Fulfills]
2|"SELECT c.department,c.code,c.title FROM course AS c JOIN degree_courses
AS dc ON c.id = dc.course JOIN degree AS d ON dc.degree = d.id WHERE
location1 = var1 AND location2 = var2 AND location3 = var3 ;"|3|[Level
Number],[GE_Area],[Grad_vs_Undergrad],[Upper_vs_Lower],[Degree],[Departmen
t],[Fulfills]
3|"SELECT d.totalunits FROM degree AS d WHERE location1 = var1
;"|1|[Degree]
4|"SELECT SUM(c.units) FROM course AS c JOIN degree_courses AS dc ON c.id
= dc.course JOIN degree AS d ON dc.degree = d.id WHERE  location1 = var1
AND location2 = var2 ;"|2|[Level
Number],[Upper_vs_Lower],[GE_Area],[Grad_vs_Undergrad],[Degree],[Departmen
t],[Fulfills]
5|"SELECT c.units FROM course AS c WHERE  location1 = var1 ;"|1|[Course]
6|"SELECT COUNT(id) FROM course AS c JOIN degree_courses AS dc ON c.id =
dc.course JOIN degree AS d ON dc.degree = d.id WHERE  location1 = var1 AND
location2 = var2 ;"|2|[Department],[Degree]
7|"SELECT d.totalunits FROM degree AS d WHERE  location1 = var1
;"|1|[Degree]
8|"SELECT COUNT(DISTINCT c.department) FROM course AS c JOIN
degree_courses AS dc ON c.id = dc.course JOIN degree AS d ON dc.degree =
d.id WHERE  location1 = var1 ;"|1|None
9|"SELECT prerequisites FROM course WHERE location1 = var1;"|1|[Course]
10|"SELECT prerequisites FROM course WHERE location1 = var1;"|1|[Course]
11|"None"
12| "SELECT fulfill FROM degree_courses WHERE location1=var1 AND
location2=var2;"|1|[Course]
13|"SELECT c.lectures FROM course AS c WHERE location1 = var1
;"|1|[Course]
14|"SELECT c.labs FROM course AS c WHERE location1 = var1 ;"|1|[Course]
15|"SELECT g.area FROM course as g JOIN degree AS d ON d.id = g.degree
```

1. Get the group.
2. Each Group has a SQL Query.
3. A little bit of regex to formulate the response.

Slack Bot

@StaCIA's Mom

slack

slackclient 2.0.1

```
pip install slackclient
```

makena 8:51 PM
@StaCIA's Mom hi

StaCIA's Mom APP 8:51 PM
was added to #general by makena.

makena 8:51 PM
@StaCIA's Mom hi
@StaCIA's Mom hi
@StaCIA's Mom hi
@StaCIA's Mom hi
@StaCIA's Mom hi
@StaCIA's Mom hi
@StaCIA's Mom hi
@StaCIA's Mom hi
@StaCIA's Mom hi

StaCIA APP 9:06 PM
Test Response!

Kevin Sanchez 9:12 PM
joined #general.

makena 9:13 PM
@StaCIA's Mom ?

StaCIA APP 9:13 PM
Not sure what you mean. Ask **What questions can I ask?**.

makena 9:13 PM
@StaCIA's Mom What questions can I ask?

StaCIA APP 9:13 PM
You can ask anything about the Stats Major, Stats Minor, and their curricula.

makena 9:25 PM
@StaCIA's Mom hi

StaCIA APP 9:25 PM
Sure...write some more code then I can do that!

Wasn't working

Finally working

Questions????