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| For Academic Affairs and Research Use Only | |
| CIP Code: |  |
| Degree Code: |  |

**New Course Proposal Form**

**[X] Undergraduate Curriculum Council**

**[ ] Graduate Council**

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| **[X] New Course or [ ]Experimental Course (1-time offering) (Check one box)** |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

Email completed proposals to [curriculum@astate.edu](mailto:curriculum@astate.edu) for inclusion in curriculum committee agenda.

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| Hong Zhou 10/23/2019 **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| Amanda Lambertus 10/23/2019 **Department Chair:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Head of Unit (If applicable)** |
| John Hershberger 10/25/2019 **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| Lynn Boyd 10/25/2019 **College Dean** |  |
| |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **General Education Committee Chair (If applicable)** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Vice Chancellor for Academic Affairs** |

1. Contact Person (Name, Email Address, Phone Number)

Latia Carraway

[lcarraway@astate.edu](mailto:lcarraway@astate.edu)

8709723090

2. Proposed Starting Term and Bulletin Year

Summer 2020

3. Proposed Course Prefix and Number (Confirm that number chosen has not been used before. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*. )

STAT 2003

4. Course Title – if title is more than 30 characters (including spaces), provide short title to be used on transcripts. Title cannot have any symbols (e.g. slash, colon, semi-colon, apostrophe, dash, and parenthesis). Please indicate if this course will have variable titles (e.g. independent study, thesis, special topics).

Introduction to Statistics

5. Brief course description (40 words or fewer) as it should appear in the bulletin.

Survey course designed for students to become familiar with the usefulness of statistics in solving real world problems. Includes sampling, observational studies and designed experiments, regression, graphical descriptive methods, measures of central tendency and variation, confidence intervals and hypothesis testing.

6. Prerequisites and major restrictions. (Indicate all prerequisites. If this course is restricted to a specific major, which major. If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

1. Are there any prerequisites? Yes
   1. If yes, which ones?

Minimum of ACT 19 Math

* 1. Why or why not?

Basic math, reasoning, and reading skills; Students will use software to output statistics.

1. Is this course restricted to a specific major? No
   1. If yes, which major? Enter text...

7. Course frequency(e.g. Fall, Spring, Summer). *Not applicable to Graduate courses.*

Summer, Spring

8. Will this course be lecture only, lab only, lecture and lab, activity, dissertation, experiential learning, independent study, internship, performance, practicum, recitation, seminar, special problems, special topics, studio, student exchange, occupational learning credit, or course for fee purpose only (e.g. an exam)? Please choose one.

Lecture

9. What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental, or other [please elaborate])

Standard Letter

10. Is this course dual listed (undergraduate/graduate)? No

11. Is this course cross listed? No

**11.1** – If yes, please list the prefix and course number of cross listed course.

Enter text...

**11.2** – **Yes / No** Are these courses offered for equivalent credit?

Please explain. Enter text...

12. Is this course in support of a new program? No

a. If yes, what program?

Enter text...

13. Does this course replace a course being deleted? No

a. If yes, what course?

Enter text...

14. Will this course be equivalent to a deleted course? No

a. If yes, which course?

Enter text...

15. Has it been confirmed that this course number is available for use? Yes

16. Does this course affect another program? No

If yes, provide confirmation of acceptance/approval of changes from the Dean, Department Head, and/or Program Director whose area this affects.

Enter text...

**Course Details**

17. Outline (The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

Week 1: Introduction to Statistical Science and Scientific methods for obtaining data

Week 2: Observational Study/Designed Experiments, Bias and Error

Week 3: Summarize and Display Categorical Data (Computer Based)

Week 4: Summarize and Display Numerical Data (Computer Based)

Week 5: Measures of Central Tendency and Dispersion, Shape of Data (Computer Based)

Week 6: Introduction to probability… Basic laws

Week 7: Shape of Data (Empirical Rule and Chebyshev Rule)

Week 8-9: Discrete and Continuous Probability Distributions

Week 10: Sampling Distribution/ Central Limit Theorem

Week11: Confidence Intervals for Mean (Computer Based)

Week 12: Hypothesis Testing for Mean (Computer Based)

Week 13: Confidence Interval for Proportion (Computer Based)

Week 14: Hypothesis Testing for Proportion (Computer Based)

Week 15: Correlations and Simple Linear Regression (Computer Based)

Week 16: Review for Final Examination

18. Special features (e.g. labs, exhibits, site visitations, etc.)

Enter text...

19. Department staffing and classroom/lab resources

1. Will this require additional faculty, supplies, etc.?

No

20. Does this course require course fees? No

*If yes: please attach the New Program Tuition and Fees form, which is available from the UCC website.*

**Course Justification**

21. Justification for course being included in program. Must include:

a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

Knowledge of statistics is needed in every major. This course would give students a foundation in statistical language, summarizing and organizing data, basic inference techniques, and the ability to interpret output. User-friendly statistical software would be used for data output, and limited mathematical explanation of concepts would be given. This course would allow easier transfer of lower level statistics courses for transfer students.

b. How does the course fit with the mission established by the department for the curriculum? If course is mandated by an accrediting or certifying agency, include the directive.

This course enhances the mission of the Department of Mathematics to “prepare students for a variety of future endeavors and careers in business, industry, government, research, and academia.” This course will require students to

* Employ statistical terminology and notation accurately.
* Communicate statistics effectively.
* Read and interpret written material in statistics effectively.
* Possess the skills to read, interpret, and analyze applied statistical problems.
* Employ appropriate techniques, methods, and procedures in solving applied statistical problems.

c. Student population served.

Undergraduate: Freshman or Sophomore

d. Rationale for the level of the course (lower, upper, or graduate).

This is an introductory course to statistics; there is limited mathematical knowledge needed, so the only pre-requisite is an ACT score of at least 21.

**Assessment**

**Relationship with Current Program-Level Assessment Process**

22. What is/are the intended program-level learning outcome/s for students enrolled in this course? Where will this course fit into an already existing program assessment process?

This course will serve as an elective option for any major.

23. Considering the indicated program-level learning outcome/s (from question #23), please fill out the following table to show how and where this course fits into the program’s continuous improvement assessment process.

*For further assistance, please see the ‘Expanded Instructions’ document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.*

*(Repeat if this new course will support additional program-level outcomes)*

**Course-Level Outcomes**

24. What are the course-level outcomes for students enrolled in this course and the associated assessment measures?

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| **Outcome 1** | Students will be able to identify and collect different types of data, recognize bias and error with sampling. |
| Which learning activities are responsible for this outcome? | Assigned readings, lecture, lab assignments, and activities with data sets, examples |
| Assessment Measure | Graded assignments and exams |

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| **Outcome 2** | Students will be able to use software to analyze data. |
| Which learning activities are responsible for this outcome? | Assigned readings, lecture, software practice with data sets, examples |
| Assessment Measure | Graded assignments and exams |

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| **Outcome 3** | Students will be able to summarize and organize data utilizing basic descriptive techniques; analyze data using basic inferential techniques: confidence intervals and hypothesis testing. |
| Which learning activities are responsible for this outcome? | Assigned readings, lecture, software practice with data sets, examples |
| Assessment Measure | Graded assignments and exams |

**Bulletin Changes**

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| **Instructions** |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Follow the following guidelines for indicating necessary changes.**  **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.**  - Deleted courses/credit hours should be marked with a red strike-through (~~red strikethrough~~)  - New credit hours and text changes should be listed in blue using enlarged font (blue using enlarged font).  - Any new courses should be listed in blue bold italics using enlarged font (***blue bold italics using enlarged font***)  *You can easily apply any of these changes by selecting the example text in the instructions above, double-clicking the ‘format painter’ icon 🡪 , and selecting the text you would like to apply the change to.*  *Please visit* [*https://youtu.be/yjdL2n4lZm4*](https://youtu.be/yjdL2n4lZm4) *for more detailed instructions.* |

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Statistics (STAT)

***STAT 2003. Introduction to Statistics Survey course designed for students to become familiar with the usefulness of statistics in solving real world problems. Includes sampling, observational studies and designed experiments, regression, graphical descriptive methods, measures of central tendency and variation, confidence intervals and hypothesis testing. Prerequisite, minimum of ACT 19 Math. Summer, Spring***

**STAT 3033. Statistics for the Health Professions** Introduction to data manipulation, analysis, and interpretation for health care professionals. Topics include Evidenced Based Practice, variables, scales of measurement, descriptive statistics, regression, statistical and clinical significance, confidence intervals, hypothesis testing, and inferential statistics including ANOVA. Restricted to College of Nursing and Health Professions majors. Prerequisite, MATH 1023 or equivalent. Fall, Spring, Summer

**STAT 3133. Applied Categorical Data Analysis** Identifying data as qualitative, quantitative, and level of measurement. Organizing, summarizing, and displaying data; contingency tables and association, sampling, observational studies and designed experiments, probability, discrete and continuous probability distributions, hypothesis testing, interpret results. Prerequisite, MATH 1023 or MATH 1043. Fall, Spring

**STAT 3233. Applied Statistics** I For students in a variety of disciplines including the sciences, allied health fields, and education. Descriptive statistics for quantitative and qualitative data, normal distributions, correlation, linear regression, sample surveys, randomized comparative experiments, sampling distributions, estimation and hypothesis testing for means and proportions. Prerequisite, MATH 1023 or equivalent. Fall, Spring, Summer.