For Academic Affairs and Research Use Only	
Proposal Number	
CIP Code:	
Degree Code:	

NEW OR MODIFIED COURSE PROPOSAL FORM

[ ] Undergraduate Curriculum Council

[XX] Graduate Council

[XX]New Course, [ ]Experimental Course (1-time offering), or [ ]Modified Course (Check one box)

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

Dr. Hrishikesh Desai December 2, 2022
Department Curriculum Committee Chair

12/1/2022
COPE Chair (if applicable)

James Doering December 2, 2022
Department Chair

ENTER DATE...
Head of Unit (if applicable)

Melodie Philhours 12/6/2022
College Curriculum Committee Chair

ENTER DATE...
Undergraduate Curriculum Council Chair

Director of Assessment (new courses only)

ENTER DATE...
Graduate Curriculum Committee Chair

Jim Washam 01/03/2023
College Dean

Len Frey 3/3/23
Vice Chancellor for Academic Affairs

ENTER DATE...
General Education Committee Chair (if applicable)

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

Dr. Hrishikesh Desai, hdesai@astate.edu, 870-680-8316

2. Proposed starting term and Bulletin year for new course or modification to take effect

Fall 2023

Instructions:
Please complete all sections unless otherwise noted. For course modifications, sections with a "Modification requested?" prompt need not be completed if the answer is "No."

3.

	Current (Course Modifications Only)	**Proposed (New or Modified)** *(Indicate "N/A" if no modification)*
Prefix		**ACCT**
Number*		**5723**
Title (include a short title that's 30 characters or fewer)		**Strategic ACCT Technologies II**
Description**		This course focuses on developing technical data science skills for working with accounting data. The concepts of data analytics automation and visualization are taught within the context of accounting data domains and using more advanced general-purpose tools and technologies. Prerequisite ACCT 2713 with a C or better. Spring

***** Confirm with the Registrar's Office that number chosen has not been used before and is available for use. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*.
**Forty words or fewer (excepting prerequisites and other restrictions) as it should appear in the Bulletin.

4. Proposed prerequisites and major restrictions [Modification requested? Yes/No]
(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).

a. **Yes / No** Are there any prerequisites? YES

a. If yes, which ones?

ACCT 2713 Accounting Analytics I

b. Why or why not?

ACCT 2713 Accounting Analytics I is a Foundational course providing needed background to take and successfully complete ACCT 5723 Strategic Accounting Technologies II

b. **Yes / No** Is this course restricted to a specific major? NO

a. If yes, which major? Enter text...

5. Proposed course frequency **[Modification requested? Yes/No]**

(e.g. Fall, Spring, Summer; if irregularly offered, please indicate, "irregular.") *Not applicable to Graduate courses.*

6. Proposed course type **[Modification requested? Yes/No]**

Will this course be lecture only, lab only, lecture and lab, activity (e.g., physical education), dissertation/thesis, capstone, independent study, internship/practicum, seminar, special topics, or studio? Please choose one.

Lecture only

7. Proposed grade type **[Modification requested? Yes/No]**

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

Standard Letter

8. Yes / No Is this course dual-listed (undergraduate/graduate)? Yes

9. Yes / No Is this course cross-listed? No.

(If it is, all course entries must be identical including course descriptions. Submit appropriate documentation for requested changes. It is important to check the course description of an existing course when adding a new cross-listed course.)

a. – If yes, please list the prefix and course number of the cross-listed course.

Enter text...

b. – **Yes / No** Can the cross-listed course be used to satisfy the prerequisite or degree requirements this course satisfies?

Enter text...

10. Yes / No Is this course in support of a new program? No

a. If yes, what program?

Enter text...

11. Yes / No Will this course be a one-to-one equivalent to a deleted course or previous version of this course (please check with the Registrar if unsure)? No

a. If yes, which course?

Enter text...

Course Details

12. Proposed outline **[Modification requested? Yes/No]**

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

COURSE OUTLINE

BASED ON 15 WEEK SEMESTER, CLASS MEETING TWICE EACH WEEK

WEEK	CLASS NUMBER	TOPIC
1	1	Alteryx Designer: Setup & Introduction
1	2	Alteryx: Fundamentals & Data Types
2	3	Alteryx: Fundamentals & Data Types
2	4	Alteryx: 'Input/Output' Tools
3	5	Alteryx: 'Input/Output' Tools
3	6	Alteryx: 'Input/Output' Tools
4	7	Alteryx: 'Join' Tools
4	8	Alteryx: 'Join' Tools
5	9	Alteryx: 'Join' Tools
5	10	Alteryx: 'Preparation' Tools
6	11	Alteryx: 'Preparation' Tools
6	12	Alteryx: 'Preparation' Tools
7	13	Alteryx: 'Transform' Tools
7	14	Alteryx: 'Transform' Tools
8	15	Alteryx: 'Transform' Tools
8	16	Alteryx: 'Parse' Tools
9	17	Alteryx: 'Parse' Tools
9	18	Alteryx Micro-Credential Exam
10	19	Alteryx: 'Reporting' Tools
10	20	Alteryx: 'Reporting' Tools
11	21	Alteryx: 'Reporting' Tools
11	22	Alteryx: 'Reporting' Tools
12	23`	Alteryx: 'Data investigation' Tools
12	24	Alteryx: 'Data investigation' Tools
13	25	Alteryx: 'Data investigation' Tools

13	26	Python review
14	27	Python review
14	28	Python tool in Alteryx
15	29	Python tool in Alteryx
15	30	Accounting data analysis project using Alteryx

13. Proposed special features **[Modification requested? Yes/No]**
(e.g. labs, exhibits, site visitations, etc.)
NONE

14. Department staffing and classroom/lab resources

One Faculty, Regular Classroom

a. Will this require additional faculty, supplies, etc.? No.
Enter text...

15. Yes / No 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.

Justification

Modification Justification (Course Modifications Only)
16. Justification for Modification(s)
Enter text...

New Course Justification (New Courses Only)
17. Justification for course. Must include:

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

- **Polimeni and Burke (2021):** "*New technological innovations must be integrated at both the undergraduate and graduate levels. Although many accounting departments may have started a piecemeal implementation of these topics, a complete curriculum review and restructuring is likely to be in order.*"
- **The Tax Adviser (2022):** "*Employers continue to emphasize a need for accounting graduates with an expert-level ability to analyze and interpret large amounts of data using current and emerging technologies.*"
- **IMA Management Accounting Quarterly (2021):** "*Grant Thorton LLP Grant Thornton LLP considers auditors' proficiency with Excel and Access a minimum and expects experience with at least some of the following:*
  • For automation: Alteryx, Automation Anywhere, Power Apps, Power Automate;
  • For analysis: R, Python, Power Query, other analytic packages; and
  • For visualization: Tableau, Power BI, and other visualization engines"
- **The IMA Management Accountant Competency Framework (2018)** indicates that "*accountants should be able to not only interpret and use statistics, but also create models, and generate results themselves. The IMA Framework also identifies specific technology tools including spreadsheets, SQL, Python, and R.*"
- **Dow, et al. (2021):** "*Alteryx provides a tool for Descriptive, Diagnostic, Predictive, and Prescriptive Analytics; spatial analysis; and R and Python code embedded analysis.*"
- **Zhang, et al. (2021):** Talk about how Alteryx is a great ETL tool that accountants need to learn.
- **Tech Target (2021):** Talks about how accounting giant, BDO LLP, boosted efficiency with Alteryx automation saved more than 100,000 work hours by automating repetitive tasks.
- **Institute of Chartered Accountants of England & Wales (2022):** "*Python is the computer language of choice for accountants … From an accountancy perspective, Python is most useful when working with data. It can essentially read any type, both structured and unstructured. It has powerful capabilities in data importation and manipulation – tasks like merging and recoding – as well as handling large amounts. Python skills have become increasingly important to support data analytics work.*"
- **Towards Data Science (2022):** Talks about how accounting tasks can be automated with Python.
- **Strategic Finance (2022):** "*Alteryx is a viable option for accounting professionals who lack the time, desire, or need to learn Python or R … AI and ML present exciting opportunities to transform the accounting profession for the better … Python is the most popular language for ML work, given its flexibility and data-science arsenal.*"
- **Vasarhelyi and Rozario (2018):** "*RPA has already garnered interest from public accounting firms, particularly with respect to taxation, advisory, and assurance services. For example, a significant portion of tax activities, such as the calculation of book-tax differences and the preparation of tax returns, has been successfully automated by RPA software robots.*"
- **Accounting Today (2021):** Robotic process automation has become a necessary technology for many accounting firms that are trying to achieve more efficiency as the staff becomes harder to find during the ongoing pandemic.
- **Alteryx Embedded Python (2022):** https://help.alteryx.com/20221/designer/alteryx-embedded-python
- **Official statement from Anna Howard, CPA, Senior Manager of Academic Initiatives *(*ThisWayToCPA.com, 2022a*):*** "*Emerging technology is changing the nature of the accounting profession leading to less clicking, formatting, ticking and tying. Preparing accounting students for this evolving workplace requires a deeper understanding of data, technology and the processes associated with managing technology. The experiential environment of RPA development combined with the problem-solving challenges inherent to develop automation solutions challenged students in ways that were meaningful to them.*"

The above reasons have necessitated the creation of SAT II, which includes data analytics at an advanced level on accounting datasets using the Alteryx Analytics Automation tool (along with Python code embedded analysis) with a focus on ETL processes and RPA.

Justification for offering this for Graduate Credit: **Extra work that graduate students taking SAT II need to do for graduate credit –** Students taking the course for graduate credit will have to present the results of their accounting data analysis project using Alteryx to the entire class.

Goals for the course (skill or level of knowledge students can be expected to attain):

Students will: Study Alteryx and gain knowledge of Setup and design; fundamental data types; input/output tools; join tools, preparation tools, transform tools, parse tools; reporting tools, and data investigation tools. Study and review Python and learn how to use Python in Alteryx; and perform a data analysis project using Alteryx

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

   The course fits in directly with the mission of the Accounting Department and is not mandated by an accrediting or certifying agency.

c. Student population served.

   Graduate students

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

   Students taking this for graduate credit must complete additional work noted in 17 above to earn graduate credit for this course.

Assessment

Assessment Plan Modifications (Course Modifications Only)

18. Yes / No Do the proposed modifications result in a change to the assessment plan? No
If yes, please complete the Assessment section of the proposal

Relationship with Current Program-Level Assessment Process (Course modifications skip this section unless the answer to #18 is "Yes")

19. 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?

Outcome # 1 Knowledge: Students will apply appropriate professional knowledge to a) develop and measure, b) analyze, and c) communicate financial and other business information.

Outcome #2 Data Analytics and Professional Judgment: Students will apply data analysis skills and professional judgment to solve problems and make decisions in a business setting.

Outcome # 3 Research: Students will demonstrate an ability to find and communicate answers to accounting and tax questions by using the appropriate tools to conduct research in original sources of accounting and tax standards.

Outcome # 4 Communication: Students will demonstrate an ability to communicate effectively.

20. Considering the indicated program-level learning outcome/s (from question #19), 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)

Program-Level Outcome 1 (from question #19)	Outcome # 1 Knowledge: Students will apply appropriate professional knowledge to a) develop and measure, b) analyze, and c) communicate financial and other business information.
Assessment Measure	Assessed in ACCT 6073. Students will be given an exam covering four subject areas (Financial Accounting, Managerial Accounting, Auditing, and Taxation). The test will include CPA Exam style questions. Scores on each subject matter component of the exam will be converted to a three-point scale using the following table: Greater than 80% = Exceeds Expectations 65% to 80% = Meets Expectations
Assessment Timetable	The assessment for accounting knowledge in the revised learning assessments will begin in the fall semester of 2021 and will be repeated in the fall semester of every odd year

	thereafter. Knowledge was assessed for the last time in the existing learning assessment in the fall semester of 2019.
Who is responsible for assessing and reporting on the results?	The Department Chair and the Accounting Graduate Curriculum Committee are responsible for assessing and reporting results.

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

Program-Level Outcome 2 (from question #19)	Outcome #2 Data Analytics and Professional Judgment: Students will apply data analysis skills and professional judgment to solve problems and make decisions in a business setting.
Assessment Measure	Assessed in ACCT 5183. Students will be assigned a case that includes a large data set. Students will be asked to analyze the data and answer a series of questions that require the student to explain the meaning of the numbers to a non-technical audience and apply professional judgment to select between possible courses of action. The student's answers will be evaluated using a rubric developed by the Accounting Graduate Curriculum Committee.
Assessment Timetable	Beginning spring semester 2021 and every odd spring thereafter.
Who is responsible for assessing and reporting on the results?	The Department Chair and the Accounting Graduate Curriculum Committee are responsible for assessing and reporting results.

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

Program-Level Outcome 3 (from question #19)	Outcome # 3 Research: Students will demonstrate an ability to find and communicate answers to accounting and tax questions by using the appropriate tools to conduct research in original sources of accounting and tax standards.
Assessment Measure	Assessed in ACCT 6073 Students are required to complete a major research paper as their capstone experience in the MAcc. The research portion of each paper will be evaluated using a rubric developed by the Accounting Graduate Curriculum Committee.
Assessment Timetable	Beginning fall semester of 2020 and every fall semester of even years thereafter.
Who is responsible for assessing and	The Department Chair and the Accounting Graduate Curriculum Committee are responsible for assessing and reporting results.

reporting on the results?	

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

Program-Level Outcome 4 (from question #19)	Outcome # 4 Communication: Students will demonstrate an ability to communicate effectively.
Assessment Measure	Assessed in ACCT 6073 Students complete a major research paper as their capstone experience in the MAcc. Students will orally present their findings to the class. The student's papers and oral presentations will be evaluated using a rubric developed by the Accounting Graduate Curriculum Committee.
Assessment Timetable	The assessment for communication under the revised learning goals will begin with the spring 2022 and will be repeated in the fall semester of even years thereafter. Communication under the existing learning goals will be assessed in the 2019-2020 school year.
Who is responsible for assessing and reporting on the results?	The Department Chair and the Accounting Graduate Curriculum Committee are responsible for assessing and reporting results.

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

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

Course-Level Outcomes

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

Outcome 1	By successfully completing this course, students will be able to: Frame accounting problems in ways that can be answered through data preparation and analysis.
Which learning activities are responsible for this outcome?	Classroom Lectures, Practice Problems, homework
Assessment Measure	Direct measures will be obtained through class examinations and indirect measure by completion of the B. S. in Accounting

(Repeat if needed for additional outcomes)

Outcome 2	By successfully completing this course, students will be able to: Develop an introductory to intermediate level expertise with the Alteryx analytics automation tool.
Which learning activities are responsible for this outcome?	Classroom Lectures, Practice Problems, homework
Assessment Measure	Direct measures will be obtained through class examinations and indirect measure by completion of the B. S. in Accounting

(Repeat if needed for additional outcomes)

Outcome 3	By successfully completing this course, students will be able to: Develop a working understanding of Python and associated development tools.
Which learning activities are responsible for this outcome?	Classroom Lectures, Practice Problems, homework
Assessment Measure	Direct measures will be obtained through class examinations and indirect measure by completion of the B. S. in Accounting

(Repeat if needed for additional outcomes)

Outcome 4	By successfully completing this course, students will be able to: Apply Alteryx and Python programming skills for data transformation, analytics, and visualization.
Which learning activities are responsible for this outcome?	Classroom Lectures, Practice Problems, homework
Assessment Measure	Direct measures will be obtained through class examinations and indirect measure by completion of the B. S. in Accounting

(Repeat if needed for additional outcomes)

Outcome 5	By successfully completing this course, students will be able to: Explain, interpret, and communicate the results from their data work to a technical or non-technical audience effectively.
Which learning activities are responsible for this outcome?	Classroom Lectures, Practice Problems, homework

Assessment Measure	Direct measures will be obtained through class examinations and indirect measure by completion of the B. S. in Accounting

(Repeat if needed for additional outcomes)

Outcome 6 FOR 5000 LEVEL	By successfully completing this course, students will be able to: Prepare and deliver a compelling oral presentation to share data insights.
Which learning activities are responsible for this outcome?	Classroom Lectures, Practice Problems, homework
Assessment Measure	Direct measures will be obtained through class examinations and indirect measure by completion of the B. S. in Accounting

(Repeat if needed for additional outcomes)

Bulletin Changes

Instructions
Please visit 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. Please include a before (with changed areas highlighted) and after of all affected sections. ***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.**

Before: URL for the Accounting BS, 2022-2023.

https://catalog.astate.edu/preview_program.php?catoid=4&poid=965&returnto=113

- ACCT 5023 - Advanced Accounting and International Issues **Sem. Hrs: 3**
- ACCT 5113 - Tax Accounting II **Sem. Hrs: 3**
- ACCT 5133 - Accounting Statistics **Sem. Hrs: 3**
- ACCT 5183 - Accounting Analytics **Sem. Hrs: 3**
- ACCT 6073 - Applied Professional Research **Sem. Hrs: 3**
- ACCT 6153 - Audit Analytics **Sem. Hrs: 3**
- MIS 6473 - Data Mining **Sem. Hrs: 3**
- MIS 6543 - Business Analytics **Sem. Hrs: 3**

After the change:

- ACCT 5023 - Advanced Accounting and International Issues **Sem. Hrs: 3**
- ACCT 5113 - Tax Accounting II **Sem. Hrs: 3**
- ACCT 5133 - Accounting Statistics **Sem. Hrs: 3**
- ACCT 5183 - Accounting Analytics **Sem. Hrs: 3**
-
- **ACCT 5723 Strategic Accounting Technologies II**
- **Sem Hrs: 3**
- This course focuses on developing technical data science skills for working with accounting data. The concepts of data analytics automation and visualization are taught within the context of accounting data domains and using more advanced general-purpose tools and technologies. Spring
- Prerequisite: ACCT 2713 with a C or better.
-
- ACCT 6073 - Applied Professional Research **Sem. Hrs: 3**
- ACCT 6153 - Audit Analytics **Sem. Hrs: 3**

- MIS 6473 - Data Mining **Sem. Hrs: 3**
- MIS 6543 - Business Analytics **Sem. Hrs: 3**