THE UNIVERSITY OF ARIZONA

New Academic Program Workflow Form

General

Proposed Name: Business Analytics

Transaction Nbr: 00000000000168

Plan Type: Major

Academic Career: Undergraduate

Degree Offered: BSBA-Bachelor of Science in Business Administration

Do you want to offer a minor? N

Anticipated 1st Admission Term: Fall 2023

Details

Department(s):

BUSN

DEPTMNT ID	DEPARTMENT NAME	HOST
3001	Eller Administration	Y

Campus(es):

MAIN

LOCATION	DESCRIPTION
TUCSON	Tucson

Admission application terms for this plan: Spring: Y Summer: Y Fall: Y

Plan admission types:

Freshman: N Transfer: N Readmit: Y Graduate: N

Non Degree Certificate (UCRT only): N

Other (For Community Campus specifics): N

Plan Taxonomy: 30.7102, Business Analytics.

Program Length Type: Program Length Value: 0.00

Report as NSC Program:

SULA Special Program:

Print Option:

Diploma: Y Business Analytics

Transcript: Y Business Analytics

Conditions for Admission/Declaration for this Major:

As with the other Eller BSBA majors, students enter the college in a common business major and to move into the final 2 years of the program and select their BSBA major, they must have a 2.75 or higher GPA and complete an application process, including a cover letter, resume, and interview.

Requirements for Accreditation:

All Eller majors fall under the college's AACSB accreditation

Program Comparisons

University Appropriateness

The major will strengthen the portfolio of data analytics offering in the University of Arizona. The major is an applied data analytics major focusing on solving business problems. The students will have a strong foundation in all aspects of business, including Business Communication, and develop strong analytical skills.

Arizona University System

NBR	PROGRAM	DEGREE	#STDNTS	LOCATION	ACCRDT
1	Business Data Analysis	BS	400	ASU, Tempe and Online	Y

Peer Comparison

See Attached Comparison

Faculty & Resources

Faculty

Current Faculty:

INSTR ID	NAME	DEPT	RANK	DEGREE	FCLTY/%
13002525	Todd Neumann	3009	Senior Lecturer	Doctor of Philosophy	10.00
22063263	David Brown	3003	Assoc. Prof	Doctor of	10.00

INSTR ID	NAME	DEPT	RANK	DEGREE	FCLTY/%
				Philosophy	
22071462	Yong Ge	3010	Assoc. Prof	Doctor of Philosophy	10.00
22075450	Hilmi Songur	3003	Senior Lecturer	Doctor of Philosophy	10.00

Additional Faculty:

3 TTE faculty will be hired in a staggered fashion in MS. MKTG, and FIN to assist with supporting this major

Current Student & Faculty FTE

DEPARTMENT	UGRD HEAD COUNT	GRAD HEAD COUNT	FACULTY FTE
3003	390	27	17.18
3004	432	98	26.85
3006	389	34	15.70
3007	300	89	19.65
3009	363	51	25.07
3010	283	146	21.75

Projected Student & Faculty FTE

	UGRD HEAD COUNT			GRAD HEAD COUNT			FACULTY FTE		
DEPT	YR 1	YR 2	YR 3	YR 1	YR 2	YR 3	YR 1	YR 2	YR 3
3001	87	180	285	0	0	0	0.00	0.00	0.00
3003	390	390	390	27	27	27	17.18	17.18	18.18
3004	432	432	432	98	98	98	26.85	26.85	26.85
3006	389	389	389	34	34	34	15.70	16.70	16.70
3007	300	300	300	89	89	89	19.65	19.65	19.65
3009	363	363	363	51	51	51	25.07	25.07	25.07
3010	283	283	283	146	146	146	22.75	22.75	22.75

Library

Acquisitions Needed:

N/A

Physical Facilities & Equipment

Existing Physical Facilities:

N/A

Additional Facilities Required & Anticipated:

Office space may be needed for new faculty, the one time cost of possible renovations has been added to the budget document.

Other Support

Other Support Currently Available:

The Eller Undergraduate Program has a centralized student services model, as with the existing BSBA majors, the Undergraduate will provide advising, career coaching, and student engagement programing to the BUAN major.

Other Support Needed over the Next Three Years:

As the major evolves, an additional Eller academic advisor and an Eller career coach will be added to the undergraduate team to serve the BUAN majors.

Comments During Approval Process

THE UNIVERSITY OF ARIZONA

ACADEMIC PROGRAM – ADDITIONAL INFORMATION FORM

To be used once the preliminary proposal has been approved.

I. **MAJOR REQUIREMENTS**– complete the table below by listing the major requirements, including required number of units, required core, electives, and any special requirements, including emphases* (sub-plans), thesis, internships, etc. Note: information in this section must be consistent throughout the proposal documents (comparison charts, four-year plan, curricular/assessment map, etc.). Delete the EXAMPLE column before submitting/uploading. Complete the table in Appendix A if requesting a corresponding minor/Master's.

UNDERGRADUATE

Total units required to complete the degree	120
Upper-division units required to complete the degree	45
Foundation courses	
Second language	2nd Semester Proficiency
Math	M-Strand
General education requirements	Entry Course (1 unit) Exploring Perspectives (4 courses, 12 units) (one course from each domain required) -Artist -Humanist -Natural Scientist -Social Scientist Building Connections (3 courses, 9 units) Exit Course (1 unit)
Pre-major? (Yes/No). If yes, provide requirements. Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.	No pre-major but the BUAN major will be one of the BSBA majors which include a pre-existing common set of foundational courses in the lower division. **Business Foundational Courses:** • First Year Writing I (3)*

	• First Year Writing II (3)* • MATH 116 Calculus Concepts for Business (3)* • MIS 111 Computers and Internetworked Society (3) • MIS 112 Computers and Internetworked Society Lab (1) • ECON 200 Basic Economic Issues (3) • ACCT 200 Introduction to Financial Accounting (3) • BNAD 276 Statistical Inference in Management (3) • BCOM 214 Fundamentals of Business Communication (3) • ACCT 210 Introduction to Managerial Accounting (3) • BNAD 277 Analytical Methods for Business (4) *Courses are also included in the University's General Education Foundation
List any special requirements to declare or gain admission to this major (completion of specific coursework, minimum GPA, interview, application, etc.)	-Complete business foundational coursework -Cumulative UA GPA of 2.75 or higher -Complete the Eller Professional Admission process which includes a cover letter, resume, and interview
Major requirements	
Minimum # of units required in the major (units counting towards major units and major GPA)	18

Minimum # of upper-division units required in the major (upper division units counting towards major GPA)	18
Minimum # of residency units to be completed in the major	12
Required supporting coursework (courses that do not count towards major units and major GPA, but are required for the major). Courses listed must include prefix, number, units, and title. Include any limits/restrictions needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.	Additional Business Foundational Course: • BUAN 2XX Programming Fundamentals for Business Analytics (3) BSBA (Pre-existing) Common Core: Complete 31 units • BCOM 314R Business Communication (3) • ECON 300 Microeconomic Analysis for Business Decisions (3) • ECON 330 Macroeconomic and Global Institutions and Policy (3) • ENTR 485 Innovating: Creating the Future (3) • FIN 360 Quantitative Finance Management (3) and FIN 360L Quantitative Finance Management Lab (1) • MGMT 310A Organization Behavior and Management (3) • MGMT 402 Integrating Business Fundamentals with Ethics and Law in Management (3) • MIS 304 Using and Managing Information Systems (3) • MKTG 361 Introduction to Marketing (3) • OSCM 373 Basic Operations Management (3) *15 units of the common core must be completed in residence

Major requirements. List all major requirements including core and electives. If applicable, list the emphasis requirements for each proposed emphasis*. Courses listed count towards major units and major GPA. Courses listed must include prefix, number, units, and title. Mark new coursework (New). Include any limits/restrictions needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.	**Required BUAN Major Core: Complete 4 courses (12 units):** • BUAN 4XX Database Fundamentals for Business Analytics (3) • BUAN 4XX Business Analytics Techniques (3) • BUAN 4XX Prescriptive Analytics (3) • BUAN 4XX Data Visualization for Business (3) **BUAN Major Electives: Complete 2 courses (6 units) from the following:** • ECON 418 Introduction to Econometrics (3) • ECON 453 Data Analytics and Modeling: Quantitative Analysis for Economic Strategy • ECON 454 Advanced Data Analytics and Modeling: Advanced Quantitative Analysis for Economic Strategy (3) • FIN 413 Financial Modeling (3) • FIN 415 Critical Thinking in International Finance (3) • MIS 464 Data Analytics (3) *Additional elective options will be developed over time
Internship, practicum, applied course requirements (Yes/No). If yes, provide description.	No
Senior thesis or senior project required (Yes/No). If yes, provide description.	No

Additional requirements (provide description)	No
Minor (specify if optional or required)	Optional
Any double-dipping restrictions (Yes/No)? If yes, provide description.	Yes, BSBA courses cannot double dip in an Eller minor.

*Emphases are officially recognized sub-specializations within the discipline. ABOR Policy 2-221 c. Academic Degree Programs Subspecializations requires all undergraduate emphases within a major to share at least 40% curricular commonality across emphases (known as "major core"). Total units required for each emphasis must be equal. Proposed emphases having similar curriculum with other plans (within department, college, or university) may require completion of an additional comparison chart. Complete the table found in Appendix B to indicate if emphases should be printed on student transcripts and diplomas.

II. CURRENT COURSES–using the table below, list all existing courses included in the proposed major. You can find information to complete the table using the UA course catalog or UAnalytics (Catalog and Schedule Dashboard> "Printable Course Descriptions by Department" On Demand Report; right side of screen). If the courses listed belong to a department that is not a signed party to this implementation request, upload the department head's permission to include the courses in the proposed program and information regarding accessibility to and frequency of offerings for the course(s). Upload letters of support/emails from department heads to the "Letter(s) of Support" field on the UAccess workflow form. Add or remove rows to the table, as needed.

Course prefix and number (include cross-listings)	Units	Title	Pre-requisites	Modes of delivery (online, in-person, hybrid)	Typically Offered (F, W, Sp, Su)	Dept signed party to proposal? (Yes/No)
ECON 418	3	Introduction to Econometrics	(AREC/ECON 339 or BNAD 276) and (ECON 300 or ECON 361)*	In-Person	F, Sp	Yes, college supported program
ECON 453	3	Data Analytics and Modeling: Quantitative Analysis for Economic Strategy	(AREC/ECON 339 or BNAD 276) and (ECON 300 or ECON 361)*	In-Person	F, Sp	Yes, college

						supported program
ECON 454	3	Advanced Data Analytics and Modeling: Advanced Quantitative Analysis for Economic Strategy	ECON 453	In-Person	F, Sp	Yes, college supported program
FIN 413	3	Financial Modeling	Major: Finance. Advanced standing and (grade of C or better in FIN 412 and FIN 421)**	In-Person	F, Sp	Yes, college supported program
FIN 415	3	Critical Thinking in International Finance	Major: Finance. Advanced standing and (grade of C or better in FIN 412 and FIN 421)**	In-Person	Sp	Yes, college supported program
MIS 464	3	Data Analytics	Professional Admission	In-Person	"Contact Dept" – Semester Varies	Yes, college supported program

*This set of courses is already built into the business foundational and core curriculum

**Catalog pre-requisites will be updated when the BUAN major is approved, and the BUAN major courses are developed

III. **NEW COURSES NEEDED** – using the table below, list any new courses that must be created for the proposed program. If the specific course number is undetermined, please provide level (i.e., CHEM 4XX). Add rows as needed.

Course prefix and number (include cross-listings)	Units	Title	Pre-requisites	Modes of delivery (online, in-person, hybrid)	Status*	Anticipated first term offered	Typically Offered (F, W, Sp, Su)	Dept signed party to proposal? (Yes/No)	Faculty members available to teach the courses
BUAN 2XX	3	Programming Fundamentals for Business Analytics	None	Online, in-person, hybrid	D	Fall 2024	F, Sp, Su	Yes	David Brown
BUAN 4XX	3	Database Fundamentals for Business Analytics	Professional Admission to major and BUAN 2XX	In-person	D	Fall 2025	F, Sp	Yes	Yong Ge
BUAN 4XX	3	Business Analytics Techniques	Professional Admission to major and BUAN 2XX	In-person	D	Spring 2026	F, Sp		New
BUAN 4XX	3	Prescriptive Analytics	Professional Admission to major and BUAN 2XX	In-person	D	Spring 2026	F, Sp		New
BUAN 4XX	3	Data Visualization for Business	Professional Admission to major and BUAN 2XX	In-person	D	Fall 2026	F, Sp		New

*In development (D); submitted for approval (S); approved (A)

Click or tap here to enter text.

IV. **FACULTY INFORMATION-** complete the table below. If UA Vitae link is not provided/available, add CVs to a Box folder and provide that link. UA Vitae profiles can be found in the UA directory/phonebook. **NOTE: full proposals are distributed campus-wide, posted on committee agendas and should be considered "publicly visible". Contact Office of Curricular Affairs if you have concerns about CV information being "publicly visible".**

Faculty Member	Involvement	UA Vitae link or Box folder link
Brown, David	Teach BUAN 2XX Programming Fundamentals for Business Analytics, FIN 415 Critical Thinking in International Finance	https://profiles.arizona.edu/person/dcbrown
Ge, Yong	BUAN 4XX Database Fundamentals for Business Analytics, MIS 464 Data Analytics	https://profiles.arizona.edu/person/yongge
Neumann, Todd	Teach ECON 418 Introduction to Econometrics	https://profiles.arizona.edu/person/tcn
Songur, Hilmi	Teach FIN 413 Financial Modeling	https://profiles.arizona.edu/person/hsongur

V. **GRADUATION PLAN –** provide a sample degree plan, based on your program that includes all requirements to graduate with this major and takes into consideration course offerings and sequencing. *Undergraduate programs: please complete Addendum D: 4-Year Plan for Degree Search. Use generic title/placeholder for requirements with more than one course option (e.g., Upper Division Major Elective, Minor Course, Second Language, GE Tier 1, GE Tier 2).* Add rows as needed.

Semester 1		Semester 2		Semester 3		Semester 4	
Course prefix and number	Units	Course prefix and number	Units	Course prefix and number	Units	Course prefix and number	Units
First-Year Composition I	3	First-Year Composition II	3	ACCT 200	3	ACCT 210	3
MIS 111	3	MATH 116	3	BNAD 276	3	BNAD 277	4
MIS 112	1	Second Language	4	ECON 200 (EP:SS)	3	BCOM 214	3
MATH 112	3	BNAD 100	1	Second Language	4	BUAN 2XX	3
Gen Ed: Exploring Perspectives or Building Connections	3	Gen Ed: Exploring Perspectives or Building Connections	3	BNAD 200	1	Gen Ed: Exploring Perspectives or Building Connections	3
UNIV 101	1	Gen Ed: Exploring Perspectives or Building Connections	3			UNIV 301	1
Total	14	**Total**	17	**Total**	14	**Total**	17

Semester 5		Semester 6		Semester 7		Semester 8	
Course prefix and number	Units	Course prefix and number	Units	Course prefix and number	Units	Course prefix and number	Units
BUAN 4XX	3	BUAN 4XX	3	BUAN 4XX	3	BUAN Major Elective	3
BCOM 314R	3	BUAN 4XX	3	BUAN Major Elective	3	Gen Ed: Exploring Perspectives or Building Connections	3
MGMT 310A	3	ECON 300	3	ECON 330	3	Gen Ed: Exploring Perspectives or Building Connections	3
MKTG 361	3	MIS 304	3	ENTR 485	3	Ethics	3
FIN 360	3	OSCM 373	3	MGMT 402	3		
FIN 360L	1						
Total	16	**Total**	15	**Total**	15	**Total**	12

VI. **Curriculum Map and Assessment Map** - Complete this table as a summary of your learning outcomes and assessment plan, using these examples as a model. If you need assistance completing this table and/or the Curriculum Map, please contact the Office of Instruction and Assessment. Attach your Curriculum Map here.

Program: Business Analytics major in the BSBA degree program

Learning Outcome #1: Understand database management technologies and skills for collecting, linking, cleaning, and augmenting internal data.
Concepts: Relational models, concurrency, integrity, and recovery.
Competencies: Knowledge of databases, how to retrieve data and generate reports, and how to apply SQL query.
Assessment Methods: This outcome will be assessed in homework, exams, or student projects.
Measures: Instructor grading of homework, exams, or student projects.
Learning Outcome #2: Understanding of state-of-the-art analytics methods (descriptive, predictive, and prescriptive) and competence in analytics packages and tools that are commonly used in business.
Concepts: Wrangling data, understanding, and practicing basis ML/DM, solving business problems using data, reinforce and enhance Python skills for data analysis.
Competencies: Applying analytics to business problems.
Assessment Methods: This outcome will be assessed in homework, exams, or projects.
Measures: Instructor grading of homework, exams, or projects.
Learning Outcome #3: Proficiency of the most common software, including programming languages, including but not limited to the Microsoft Office Suite, Tableau/Power BI, SQL, Python, and R.
Concepts: Programming and data analysis with common statistical software.
Competencies: Students will demonstrate ability to program in common statistical software.
Assessment Methods: This outcome will be assessed in homework, exams, or projects.
Measures: Instructor grading of homework, exams, or projects.
Learning Outcome #4: Communicate effectively with an emphasis on data communication, including visualizing.
Concepts: Visualization, storytelling with data.
Competencies: Students will demonstrate their ability to visualize business data.
Assessment Methods: This outcome will be assessed in classroom presentations, homework, or projects.
Measures: Instructor grading of classroom presentations, homework, or projects.

VII. **PROGRAM ASSESSMENT PLAN-** using the table below, provide a schedule for program evaluation 1) while students are in the program and 2) after completion of the major. Add rows as needed. Delete EXAMPLE rows.

Assessment Measure	Source(s) of Evidence	Data Collection Point(s)
Job Placement Statistics	Student/Alumni Survey	At graduation, 90 days out
Academic Program Review	Reviewers' responses	Every 7 years

VIII. **ANTICIPATED STUDENT ENROLLMENT**-complete the table below. What concrete evidence/data was used to arrive at the numbers?

5-YEAR PROJECTED ANNUAL ENROLLMENT					
	1st Year	2nd Year	3rd Year	4th Year	5th Year
Number of Students	87	180	285	285	285

Data/evidence used to determine projected enrollment numbers:
Based on the size of the current BSBA majors, the size of peer schools' programs, and the employment outlook.

IX. **ANTICIPATED DEGREES AWARDED**- complete the table below, beginning with the first year in which degrees will be awarded. How did you arrive at these numbers? Take into consideration departmental retention rates. Use National Center for Education Statistics College Navigator to find program completion information of peer institutions offering the same or a similar program.

PROJECTED DEGREES AWARDED ANNUALLY					
	1st Year	2nd Year	3rd Year	4th Year	5th Year
Number of Degrees	78	81	129	129	129

Data/evidence used to determine number of anticipated degrees awarded annually: Once Eller students enter the upper division the graduation rate is over 90%. If the enrollment numbers represent the juniors and seniors, 90% of the seniors would be graduating in any given year.

X. **PROGRAM DEVELOPMENT TIMELINE-** describe plans and timelines for 1) marketing the major and 2) student recruitment activities.

1. Prospective students: Targeted marketing promoting new major in collaboration with UA Admissions, including segmentation of prospective students who expressed interest in a business major based on their quantitative standardized scores and high school math scores.
2. Students admitted to Eller: Highlight the new major in the University and Eller-specific admission events and Eller communications to admitted students. We may need to develop new programming for admitted students, showcasing all majors, especially BUAN to improve our yield and attract new students to the BUAN major.
3. Students admitted to UA who haven't yet declared a major: Expanding the relationship with A-center, update existing major degree landing page, degree selection advising tool, and improving communication strategy directed towards undecided students.
4. Strategically working with Central Marcomm and Eller Marcomm offices to highlight the STEM and analytics strength of Eller through various Eller and University social media and publications.
5. Our student recruitment efforts would be inclusive and additional resources would be available through curricular and co-curricular activities to support students who wish to pursue this major but who need extra support to bring their quantitative skills up to the requisite levels.
6. An important strategy to attract students to the BUAN major will be to expose them to the academic area and possible career options early in their college career. Eller plans to develop a co-curricular program that makes business analytics accessible and fun in the sophomore year and then supports students to compete in various data analytics competitions by the junior and senior years. This approach is likely to draw attention to the major and attract more students.

XI. **Program Fees and Differential Tuition (PFDT) Request** – For implementation of fees, you must work with University Fees. The annual deadline is December 1. For any questions, please contact the University Fees Program Manager.

- All BSBA majors are charged a differential tuition so no additional fee will be requested.

Appendix A. Minor or Master's Requirements. Complete if requesting a corresponding minor/master's.

- *Not Applicable – This proposal is for an undergraduate major only*

Appendix B. Emphasis Print Information-if applicable, complete the table below to indicate if proposed emphases should be printed on transcript and diploma. Add rows as needed. Note: emphases are displayed on transcript and diplomas as " _____ Emphasis".

Emphasis	Print on transcript	Print on diploma
N/A		

THE UNIVERSITY OF ARIZONA

ACADEMIC PROGRAM – ADDITIONAL INFORMATION FORM

To be used once the preliminary proposal has been approved.

Appendix C. ABOR Form

Request to Establish New Academic Program in Arizona

Please complete all fields. Boxes may be expanded to accommodate longer responses. Clarifying field descriptions can be found below. Should you have any questions or concerns, please email Helen Baxendale, Director of Academic Affairs and Policy at helen.baxendale@azregents.edu

University:

Name of Proposed Academic Program: Business Analytics
Academic Department: The name of the academic department or unit that will primarily administer the academic program. If the proposed program will be jointly administered across more than one department, please list the(se) additional department(s). *Eller College Administration*
Geographic Site: The physical site (campus, extended campus, etc.) or modality where the academic program will be primarily delivered or administered. *University of Arizona Main Campus*
Instructional Modality: The primary modality of the academic program (i.e., immersion/in-person, online/ONLN campus, icourse, hybrid). *In Person*
Total Credit Hours: The number of credit hours required to complete the academic program. *120*
Proposed Inception Term: The term and year in which the program will be first delivered (i.e., Spring 2021; Fall 2022). *Fall 2023*
Brief Program Description: A short outline of the content and skills that the proposed program will deliver. A brief description of how the program fits into the institutional mission of the university. If relevant, please provide succinct information about existing related or complementary academic programming.

The new Business Analytics (BUAN) major in the Eller Bachelor of Science in Business Administration (BSBA) degree addresses the growing demand for business analytics skills in the economy. The BUAN major responds to the growth in business analytics jobs and prepares Eller students to succeed in a digital and data-driven business world. Catering to the growing demand for business analytics skills will also provide a vehicle for attracting new students to University of Arizona. The BUAN major will enhance and diversify Eller's portfolio offerings of majors and help attenuate the impact of continuing enrollment decline in US undergraduate programs (National Student Clearinghouse Research Center 2022). The proposed major will prepare highly motivated graduates with in-depth data analytical and visualization skills training for promising careers in a data-driven economy. Data is a critical business asset, and companies are overwhelmed by the volume of information available – they struggle to manage and monetize it. The Business Analytics major prepares students for careers requiring a breadth of business knowledge and an in-depth ability to assemble, use, and analyze data to generate insights and make practical recommendations for improving results across a wide range of functional business areas.

Learning Outcomes and Assessment Plan:

Define the core concepts and competencies that the program will convey and stipulate how these key learning outcomes will be measured and assessed.

Learning Outcome #1: Understand database management technologies and skills for collecting, linking, cleaning, and augmenting internal data.
Concepts: Relational models, concurrency, integrity, and recovery.
Competencies: Knowledge of databases, how to retrieve data and generate reports, and how to apply SQL query.
Assessment Methods: This outcome will be assessed in homework, exams, or student projects.
Measures: Instructor grading of homework, exams, or student projects.
Learning Outcome #2: Understanding of state-of-the-art analytics methods (descriptive, predictive, and prescriptive) and competence in analytics packages and tools that are commonly used in business.
Concepts: Wrangling data, understanding, and practicing basis ML/DM, solving business problems using data, reinforce and enhance Python skills for data analysis.
Competencies: Applying analytics to business problems.
Assessment Methods: This outcome will be assessed in homework, exams, or projects.
Measures: Instructor grading of homework, exams, or projects.
Learning Outcome #3: Proficiency of the most common software, including programming languages, including but not limited to the Microsoft Office Suite, Tableau/Power BI, SQL, Python, and R.
Concepts: Programming and data analysis with common statistical software.
Competencies: Students will demonstrate ability to program in common statistical software.
Assessment Methods: This outcome will be assessed in homework, exams, or projects.
Measures: Instructor grading of homework, exams, or projects.
Learning Outcome #4: Communicate effectively with an emphasis on data communication, including visualizing.

Concepts: Visualization, storytelling with data.
Competencies: Students will demonstrate their ability to visualize business data.
Assessment Methods: This outcome will be assessed in classroom presentations, homework, or projects.
Measures: Instructor grading of classroom presentations, homework, or projects.

Projected Enrollment for the First Three Years:

Please provide anticipated enrollment numbers for each of the first three years of the proposed program

Year One = 87, Year Two = 180, Year Three = 285

Evidence of Market Demand:

Please provide an estimate of the future state-wide and national demand for graduates of the proposed academic program. Please specify the source (e.g., Burning Glass; Jobs EQ; US Department of Labor) of workforce demand data and detail the assumptions that underpin these projections. If job market data is unavailable or not applicable, please explain why and elaborate another justification for the proposed program.

The demand for graduates with data analytics skills has been strong and is expected to continue to be robust. This sentiment has been expressed by some significant donors and members of the Eller National Board of Advisors. Several labor market studies arrive at the same conclusion. According to the US Bureau of Labor Statistics Job Outlook, demand for business analytics occupations will grow by 14% from 2020-2030 vs. 8% for all occupations and 9% for business operations specialists. According to the World Economic Forum, data analysis is one of the most in-demand jobs in the 2020s.

The market research firm Frost & Sullivan (2020) projects that the market for big data analytics will grow from $20 billion in 2020 to $68 billion in 2025. More than half of company leaders surveyed consider data their most pressing issue. According to a study by IBM and Burning Glass Technologies (2017), demand for data and analytics talent would grow by 15% from 2015 to 2020, to an estimated 2.7 million job openings. In 2011, the McKinsey Global Institute had predicted that there would be only 2.8 million workers with deep analytical talent or data-savvy skillsets.
Data analytics skills are now in demand from employers across various jobs, from analytically rigorous jobs, such as data scientists and data systems developers, to less analytically rigorous jobs such as data-driven decision makers and functional analysts. Further, according to the World Economic Forum and IBM/Burning Glass Technologies, the demand for workers with data analytical skills is widespread across many industries, including professional services, finance and insurance, manufacturing, government, health care, supply chain management, sports management, and retail services.

Many business analytics jobs cannot be easily filled with workers trained in traditional functional disciplines (e.g., finance, marketing, etc.) or quantitative techniques (e.g., computer science). Business analytics jobs require a unique combination of deep technical training not traditionally offered by undergraduate degrees in traditional business majors, with critical thinking skills that can connect business issues with data solutions traditionally not offered by other quantitative majors.

Therefore, given the demand from recruiters and employers (many of whom already recruit from our undergraduate business program), Business Analytics will likely be a popular major that could drive higher student enrollments. However, given that many universities have already introduced an undergraduate business analytics major, it is important to differentiate Eller's BUAN program from the competition.

Similar Programs Offered at Arizona Public Universities:

List existing programs at Arizona public universities that deliver similar concepts and competencies to the proposed new program.

Arizona State University - BS in Business Data Analytics

FOR CURRICULAR AFFAIRS USE ONLY

Objection(s) Raised by Another Arizona Public University? YES NO

Has another Arizona public university lodged a written objection to the proposed program with the proposing university and the Board of Regents within seven days of receiving notice of the proposed program?

If Yes, Response to Objections:

Please provide details of how the proposing university has addressed the objection. If the objection remains unresolved, please explain why it is in the best interests of the university system and the state that the Board override it.

New Resources Required? (i.e., faculty and administrative positions; infrastructure, etc.):

The program would require 3 tenure track faculty lines with expertise in quantitative methods and business analytics to strengthen our expertise in the area. While this program would benefit greatly from these faculty, the faculty would also support existing graduate programs in business analytics. However, the plan is to hire these faculty on a staggered basis.

Plan to Request Program Fee/Differentiated Tuition? YES NO

The Eller College of Management already has a $900 per semester differential tuition in place so no additional Program Fee/Differentiated Tuition will be requested.

Estimated Amount: $900 existing Differentiated Tuition

Program Fee Justification:

Note: The fee setting process requires additional steps and forms that need to be completed. Please work with your University Fees office to complete a fee request.

Specialized Accreditation? YES NO

No, the Eller College of Management programs are AACSB accredited at the college level, no additional accreditation will be sought

Accreditor:

The name of the agency or entity from which accreditation will be sought – *N/A*

THE UNIVERSITY OF ARIZONA

BUDGET PROJECTION FORM

Name of Proposed Program or Unit: new BSBA major in Business Analytics (Eller College of Management)

	Projected		
Budget Contact Person: Lin Qian, Assistant Dean, Finance and Administration, lqian@arizona.edu	1st Year 2024 - 2025	2nd Year 2025 - 2026	3rd Year 2026 - 2027
METRICS			
Net increase in annual college enrollment UG	87	180	285
Net increase in college SCH UG	921	2,540	4,670
Net increase in annual college enrollment Grad			
Net increase in college SCH Grad			
Number of enrollments being charged a Program Fee	87	180	285
New Sponsored Activity (MTDC)			
Number of Faculty FTE	1	2	3
FUNDING SOURCES			
Continuing Sources			
UG AIB Revenue	231,285	595,900	1,138,450
Grad AIB Revenue			
Program Fee Revenue (net of revenue sharing)	110,074	227,740	360,588
F and A AIB Revenues			
Reallocation from existing College funds (attach description)			
Other Items (attach description)			
Total Continuing	**$ 341,359**	**$ 823,640**	**$ 1,499,038**
One-time Sources			
College fund balances	136,181	151,215	
Institutional Strategic Investment			
Gift Funding			
Other Items (attach description)			
Total One-time	**$ 136,181**	**$ 151,215**	**$ -**
TOTAL SOURCES	**$ 477,540**	**$ 974,855**	**$ 1,499,038**
EXPENDITURE ITEMS			
Continuing Expenditures			
Faculty	281,111	573,888	901,000
Other Personnel	45,000	90,900	92,718
Employee Related Expense	104,029	212,067	316,996
Graduate Assistantships			
Other Graduate Aid			
Operations (materials, supplies, phones, etc.)	47,400	98,000	169,500
Additional Space Cost			15,000
Other Items (attach description)			
Total Continuing	**$ 477,540**	**$ 974,855**	**$ 1,495,214**
One-time Expenditures			
Construction or Renovation			
Start-up Equipment			
Replace Equipment			
Library Resources			
Other Items (attach description)			
Total One-time	**$ -**	**$ -**	**$ -**
TOTAL EXPENDITURES	**$ 477,540**	**$ 974,855**	**$ 1,495,214**
Net Projected Fiscal Effect	**$ -**	**$ -**	**$ 3,824**

THE UNIVERSITY OF ARIZONA

New Academic Program
PEER COMPARISON

Select three peers (if possible/applicable) for completing the comparison chart from ABOR-approved institutions, AAU members, and/or other relevant institutions recognized in the field. The comparison programs are not required to have the same degree type and/or title as the proposed UA program. Information for the proposed UA program must be consistent throughout the proposal documents. Minors and Certificates may opt to include only 2 peer comparisons.

Program name, degree, and institution	Business Analytics major in BSBA (Bachelor of Science in Business Administration) degree	Business Data Analytics, BS, Arizona State University	Business Analytics & Information Management, BS, Purdue University	Business Analytics and Information Systems, BBA, University of Iowa
Current number of students enrolled	[redacted]	Approx. 400	Unknown	Unknown
Program Description	The business analytics major prepares students for careers requiring a breadth of business knowledge and an in-depth ability to assemble, use, and analyze data to generate insights and make practical recommendations for improving results across a wide range of functional business areas.	The BS program in business data analytics prepares business students with the requisite knowledge, skills and experience to create and manage big data initiatives as well as associated business processes to facilitate large-scale business data analytics in organizations.	This program is designed to help students gain expertise in technologies and techniques while emphasizing business relevance. In addition to learning programming, you'll be taught how to query or manipulate data for analysis. You will be exposed to working with transactional and big data systems, and will develop an understanding how to use appropriate	A smart business decision maker understands how to make their organization more profitable and productive through the use of technology. With a BAIS major, you can be that decision maker. Open the door to big-time careers where you'll help your company

			techniques. Moreover, you will learn about how to communicate your analysis and results to decision-makers using visualization. You will gain a deep understanding of data as it pertains to business decisions.	succeed with the power of data.
Target Careers	Consulting and Corporate business analyst	Business intelligence analyst, etc.	Business analyst, database manager	Business analysts, data analysts, systems analysts, technology consultants and managers
Emphases? (Yes/No) List, if applicable	No	No	Optional concentrations: • Finance • Hospitality and Tourism Management • International Business • Innovation Management • Management Consulting • Management Information Systems • Marketing	No

			• Operation & Supply Chain Mgmt	
Minimum # of units required		27	51-52 (includes Business foundations courses)	22
Level of Math required (if applicable)	MATH 116-Calc Concepts for Business	Brief Calculus and Mathematics for Business Analysis	Applied Calculus	Quant. Reasoning for Business
Level of Second Language required (if applicable)	Second Semester Proficiency	None	None	4th level in one language or 2nd level in two languages
Pre-Major? (Yes/No) If yes, provide requirements.	No	No	No	No
Special requirements to declare/gain admission? (i.e. pre-requisites, GPA, application, etc.)	2.75 GPA minimum (same as other existing BSBA majors)	2.0 GPA minimum	2.5 GPA minimum	2.75 GPA minimum
Internship, practicum, or applied/experiential requirements? If yes, describe.	No	No	No	No

Additional questions:

1. How does the proposed program align with peer programs? Briefly summarize the similarities between the proposed program and peers, which could include curriculum, overall themes, faculty expertise, intended audience, etc.

According to Harvard Business School, business analytics requires three types of technical skills that undergraduate business students do not typically acquire: knowledge of databases (SQL), knowledge of programming languages (e.g., R & Python), and knowledge of statistical software (e.g., SPSS, SAS, Sage, Mathematica, or Excel). Given the technical content in the major, we intend to get is designated as a STEM major.

Core Competencies

The idea behind this major is to take a cross-disciplinary approach to develop the skills necessary for using data to solve complex business problems. The business Analytics curriculum will teach students to understand and synthesize data, analyze, and interpret it, and communicate actionable insights for decision making. Not only will the major meet the general competency goals for undergraduate business students, but students in the Business Analytics major are also expected to be well versed in state-of-the-art analytics methods, data management, computer programming, and effective communication and visualization with data. Through the general business courses, existing Business Analytics core courses, and specialized discipline-specific business analytics electives, students who major in Business Analytics at Eller will be prepared to exhibit the following abilities:

Analytics Methods

Understanding of state-of-art analytics methods (descriptive, predictive, and prescriptive) and competence in analytics packages and tools that are commonly used in industry.

Data Management

Understanding of database management technologies and skills for collecting, linking, cleaning, and augmenting internal data

Programming and Software Skills

Throughout core and major-specific courses, students will become proficient users of the most common software, including programming languages, including but not limited to the Microsoft Office Suite, Tableau/Power Bi, SQL, Python, and R.

Communication and Visualization

One of Eller's strengths is producing effective communicators due largely to the sequence of courses in Business Communication. The Business Analytics Majors will also be equipped with effective communication skills and an emphasis on data communication. Our graduates will be comfortable exploring and visualizing data using Excel, Tableau/Power Bi, and Python, identifying and extracting key insights, and ultimately communicating the relevance and importance of the findings persuasively and efficiently.

2. How does the proposed program stand out or differ from peer programs? Briefly summarize the differences between the proposed program and peers, which could include curriculum, overall themes, faculty expertise, intended audience, etc.

First, Eller is well-positioned to capitalize on this demand due to the high ranking of its quantitative programs (MIS ranked #2 (public) and #4 overall) and the undergraduate program overall (ranked #20 (public) and #30 overall). Second, unlike competing peer programs, Eller BUAN majors will benefit from the unique Eller common core curriculum that builds a broad foundation in all business functional areas. Thus, Eller's education, more so than competitors, develops students' critical thinking skills that can be applied to any business problem. The BUAN major builds on this competitive advantage by adding a curriculum in data analytical tools and techniques and how they can be applied to solve real business problems. Third, Eller College excels in developing students' written, verbal, and visual business communications, which is a critical and sought-after skill for data-driven decision-makers. The BUAN major builds on this competitive advantage by providing courses in data visualization. In sum, while other business schools will teach analytical skills, Eller College differentiates itself on its ability to combine technical skills with a broad business background, the critical thinking skills necessary to relate data analytics to business problems, and the communication tools necessary to develop and present recommendations to solve real-world problems effectively.

3. How do these differences make this program more applicable to the target student population and/or a better fit for the University of Arizona?

The Eller Experience for undergraduate students includes a carefully designed curriculum coupled with co-curricular activities that prepares students for a career in business. This is particularly useful for students without the cultural capital required to succeed in business careers such as first-generation students. This well-rounded business education will be enhanced with applied data analytics that will be useful in the business context and we think that such a BUAN major will prepare our diverse Eller student body better than a primarily technical programs offered by some peer business schools.

Explanation of how the proposed undergraduate BSBA major in Business Analytics does not overlap with the program objectives or the target students of other departments on campus.

There has been an impetus to grow our data analytics offering at the University of Arizona and we have two department in the undergraduate space with programs related to data analytics – the School of Information and the Math Department. For context, in the graduate space, the Eller College of Management, the School of Information and the Math Department, all offer graduate programs related to analytics.

The proposed undergraduate business analytics major will be available only to Eller students who have chosen the BSBA degree. These students are required to take several foundations and core courses related to all the functional areas in business. The business analytics major will prepare students for careers requiring a breadth of business knowledge and an in-depth ability to assemble, use, and analyze data to generate insights and make practical recommendations for improving results across a wide range of functional business areas. In other words, BUAN major is an applied data science major focused on solving business problems, unlike the other programs that focus on analytical skills for a wide variety of applications.

The table below demonstrates how the proposed business analytics major differs from the data science and information science majors on campus and is designed for a business undergrad.

	Eller Proposed: BSBA with BUAN major	BS in Data Science (Math Department)	BS in Information Science
Foundation/Core classes	• MIS 111* *Computers and Internetworked Society* • BNAD276* *Statistical Inference in Management* • ACCT200* *Introduction to Financial Accounting* • ECON 200* *Basic Economic Issues* • ACCT210* *Introduction to Managerial Accounting* • BNAD 277* *Analytical Methods for Business* • BCOM214* *Fundamentals of Business Communication* • MGMT310A *Organization Behavior and Management* • MKTG 361 *Introduction to Marketing* • BCOM 314R *Business Communication*	• MATH 122A AND MATH 122B or MATH 125—Calculus I • MATH 129—Calculus II • MATH 223—Vector Calculus • MATH 313—Introduction to Linear Algebra • DATA 363—Introduction to Statistical Methods • DATA 375—Introduction to Statistical Computing • MATH 464—Theory of Probability	• Complete 5 courses (15 units) • CSC 110 can sub for ISTA 130 • ISTA 100: Great Ideas of the Information Age (3 Units) • ISTA 116: Statistical Foundations of the Information Age (3 Units) • ISTA 130: Computational Thinking and Doing (4 Units) • ISTA 131: Dealing with Data (4 Units) • ISTA 161: Ethics in a Digital World (3 Units)

	• FIN 311 *Introduction to Finance* • ECON 300 *Microeconomic Analysis for Business Decisions* • MGMT 402 *Integrating Business Fundamentals with Ethics and Law in Management* • ECON330 *Macroeconomic and Global Institutions and Policy* • ENTR 485 *Innovating: Creating the Future*	• MATH 466— Theory of Statistics • DATA 467 — Applied Linear Models • DATA 498A — Capstone for Statistics and Data Science	
Major required and elective courses	• *BUAN XXX Programming Fundamentals for Business Analytics* • *BUAN XXX Database Fundamentals for Analytics* • *BUAN XXX Business Analytics Techniques* • *BUAN XXX Prescriptive Analytics* • *BUAN XXX Data Visualization for Business* • *ECON 418 Introduction to Econometrics* • *ECON 453 Quantitative Methods for Economic Strategy* • *ECON 454 Advanced Quantitative Analysis for Economic Strategy* • *FIN 413 Financial Modeling* • *FIN 415 Critical Thinking in International Finance* • *MIS464 – Advanced Data Analytics* • *MKTG 376 Marketing Analytics for Decision Making*	DATA 367— Statistical Methods in Sports Analytics DATA 396T— Topics in Undergraduate Statistics & Data Science(*) DATA 462— Financial Math DATA 468— Applied Stochastic Processes DATA 496T— Advanced Topics in Undergraduate Statistics & Data Science(*) DATA 498H— Honors Thesis(**) SIE 440— Survey of Optimization Methods	ESOC 414: Computational Social Science (3 Units) GEOG 417: Geographic Information Systems for Natural and Social Sciences (3 Units) ISTA 311: Foundation of Information and Inference (3 Units) ISTA 320: Applied Data Visualization (3 Units) ISTA 321: Data Mining and Discovery (3 Units) ISTA 322: Data Engineering (3 Units) ISTA 331: Principles and Practice of Data Science (3 Units) ISTA 350: Programming for Informatics Applications (4 Units) ISTA 355: Introduction to Natural Language Processing (3 Units)

			ISTA 410: Bayesian Modeling and Inference (3 Units) ISTA 421: Introduction to Machine Learning (3 Units) ISTA 429: Applied Cyberinfrastructure Concepts (3 Units) ISTA 431: Data Warehousing and Analytics in the Cloud (3 Units) ISTA 439: Statistical Natural Language Processing (Cross-listed LING 439) (3 Units) ISTA 450: Artificial Intelligence (3 Units) ISTA 455: Applied Natural Language Processing (3 Units) ISTA 456: Text Retrieval and Web Search (3 Units) ISTA 457: Neural Networks (3 Units) LIS 470: Database Development and Management (3 Units) MATH 129: Calculus II (3 Units) MATH 313: Introduction to Linear Algebra (3 Units)