SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

Substantive Program Modification Form

UNIVERSITY:	SDSU
CURRENT PROGRAM DEGREE:	**Master of Science (M.S.)**
CURRENT PROGRAM MAJOR/MINOR:	**Geography**
CURRENT SPECIALIZATION:	**Geographic Information Sciences**
CIP CODE:	**30.4401 – Major CIP**
	45.0702 – Specialization CIP
UNIVERSITY DEPARTMENT:	**Geography & Geospatial Sciences**
BANNER DEPARTMENT CODE:	**SGGS**
UNIVERSITY COLLEGE:	**Natural Sciences**
BANNER COLLEGE CODE:	**3T**

University Approval

To the Board of Regents and the Executive Director: I certify that I have read this proposal, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.

Dennis D. Hedge	3/28/2024
Vice President of Academic Affairs or President of the University	Date

1. **This modification addresses a change in:**

   ☒ Total credits required within the discipline ☐ Total credits of supportive course work

   ☒ Total credits of elective course work ☒ Total credits required for program

   ☐ Program name ☒ Existing specialization

   ☐ CIP Code ☒ Other: Master's Graduation Requirements

   ☐ Modification requiring Board of Regents approval
   Must have prior approval from Executive Director or designee

2. **Effective date of change: 2024-2025 Academic Year**
3. **Program Degree Level:**
   Associate ☐ Bachelor's ☐ Master's ☒ Doctoral ☐
4. **Category:**
   Certificate ☐ Specialization ☒ Minor ☐ Major ☐
5. **If a name change is proposed, the change will occur:**
   ☐ On the effective date for all students
   ☐ On the effective date for students new to the program (enrolled students will graduate from existing program)
   Proposed new name:
6. **Is the program being modified associated with a current articulation agreement?**
   Yes ☐ No ☒

a. **If yes, will the articulation agreement need to be updated with the partner institution following the approve of the program change? Please explain:** N/A

7. **Primary Aspects of the Modification:**

Existing Curriculum   *Proposed Curriculum (==highlight changes==)*

Pref.	Num.	Title	Cr. Hrs.	Pref.	Num.	Title	Cr. Hrs.
GEOG	710	Evolution of Geographic Thought	3	GEOG	710	Evolution of Geographic Thought	3
GEOG	714	Research and Writing	3	GEOG	714	Research and Writing	3
GEOG	790	Seminar (Geospatial Science)	1	GEOG	790	Seminar (Geospatial Science)	1
		Select 3 of the following:	9			*Select 3 of the following:*	9
GEOG	571	Programming for Geospatial Data Analysis	3	GEOG	571	Programming for Geospatial Data Analysis	3
GEOG	573	GIS: Data Creation and Integration	2	GEOG	573	GIS: Data Creation and Integration	2
GEOG	573L	GIS: Data Creation and Integration Lab	1	GEOG	573L	GIS: Data Creation and Integration Lab	1
GEOG	574	GIS: Vector & Raster Modeling	2	GEOG	574	GIS: Vector & Raster Modeling	2
GEOG	574L	GIS: Vector & Raster Modeling Lab	1	GEOG	574L	GIS: Vector & Raster Modeling Lab	1
GEOG	575	GIS Applications	2	GEOG	575	GIS Applications	2
GEOG	575L	GIS Applications Lab	1	GEOG	575L	GIS Applications Lab	1
GEOG	576	Web GIS	2	GEOG	576	Web GIS	2
GEOG	576L	Web GIS Lab	1	GEOG	576L	Web GIS Lab	1
GEOG	577	Spatial Databases	2	GEOG	577	Spatial Databases	2
GEOG	577L	Spatial Databases Lab	1	GEOG	577L	Spatial Databases Lab	1
GEOG	583	UAS Remote Sensing	2	GEOG	583	UAS Remote Sensing	2
GEOG	583L	UAS Remote Sensing Lab	1	GEOG	583L	UAS Remote Sensing Lab	1
GEOG	584	Remote Sensing	2	GEOG	584	Remote Sensing	2
GEOG	584L	Remote Sensing Lab	1	GEOG	584L	Remote Sensing Lab	1
GEOG	585	Advanced Satellite Remote Sensing	2	GEOG	585	Advanced Satellite Remote Sensing	2
GEOG	585L	Advanced Satellite Remote Sensing Lab	1	GEOG	585L	Advanced Satellite Remote Sensing Lab	1
GEOG	741	Quantitative Remote Sensing for Terrestrial Monitoring	3	GEOG	741	Quantitative Remote Sensing for Terrestrial Monitoring	3
GEOG	743	Geospatial Analysis	3	GEOG	743	Geospatial Analysis	3
				==GEOG==	==750==	==Agricultural Remote Sensing==	==3==
GEOG	760	Advanced Methods in Geospatial Modelling: Topical Credits	3	GEOG	760	Advanced Methods in Geospatial Modelling: Topical Credits	3
GEOG	784	Machine Learning for Remote Sensing and Geographic Information Systems	3	GEOG	784	Machine Learning for Remote Sensing and Geographic Information Systems	3
GEOG	786	Geographic Information Systems	3	GEOG	786	Geographic Information Systems	3
		Select <u>one</u> of the following options:				*Select <u>one</u> of the following options:*	
		Option A: Thesis				==*Thesis*==	
GEOG	798	Thesis	5-6	GEOG	798	Thesis	5-6
		Electives	8-9			Electives	8-9
		Option B: Research/Design Paper				==*Option B: Research/Design Paper*==	
GEOG	788	Research Paper in Geography	3-5	==~~GEOG~~==	==~~788~~==	==~~Research Paper in Geography~~==	==~~3-5~~==
		Electives	10-11			==~~Electives~~==	==~~10-11~~==
		Option C: Coursework Only				==*Non-Thesis*==	
		Electives	20			==Electives==	==17==
		Total number of hours required for degree				Total number of hours required for degree	
		Option A	30			==Thesis==	30
		Option B	32			==Non-Thesis==	==33==
		Option C	36				

Master's Graduation Requirements
Current:
Option A - Thesis
- Thesis Proposal
- Thesis and Oral Defense

Option B - Research/Design Paper
- Research Project Proposal
- Research Project and Oral Defense

Option C - Coursework Only
- Oral Defense of Course Work

Proposed:
Thesis
- Thesis Proposal
- Thesis and Oral Defense

Non-Thesis
- Research Project/Portfolio and Oral Defense

8. Explanation of the Change:

The SDSU Graduate School has revised SDSU Policy 2:17 Credit Requirements for Graduate Credential Programs. The Graduate School adjusted the language to no longer refer to master's programs using Option A (Thesis Option), B (Research/Design Paper Option), C (Coursework Only), and D (Coursework Only – Professional Program) but to move forward with Thesis and Non-Thesis options that will require a minimum of 30 credits. The Department of Geography and Geospatial Sciences has requested to change the non-thesis option from 32 credits (Option B) and 36 credits (Option C) to 33 credits.

GEOG 750 Agricultural Remote Sensing (3 cr.) was added to the list of technical electives. GEOG 750 is a thematic course that is designed specifically for the applications of cutting-edge remote sensing technologies, platforms, and sensors in a variety of agriculture areas. This will help students gain the knowledge and skills for implementing various remote sensing technologies in different agriculture related areas.