



**GIS CERTIFICATION INSTITUTE**



# **GIS Professional Certification**

**Presented By: Elizabeth McNichols, GISP**  
**Date: February 6, 2014**



# GIS Certification Institute

GISCI structure & history

GISP certification

Current activities



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# Member Organizations





# Committees

- Certification Committee
- Review Committee
- Outreach Committee
- Ethics Committee



# Terminology

- **Certification:** A voluntary process by which individuals who have demonstrated a level of expertise in the profession are identified to the public and other stakeholders by a third party. Recognizes expertise.
- **Certificate:** An award given to an individual recognizing completion of an academic or training program.
- **Licensure:** The granting of a license to practice a profession. Often regulated by states and indoctrinated in legislation. Guards against incompetence.
- **Accreditation:** The process of evaluating the academic qualifications or standards of an institution or program of study in accordance with pre-established criteria.



# Why Certify?

- Although GIS has many uses, GISCI certifies the GIS profession.
- GIS *professionals* understand and apply the *full range* of GIS capabilities, most commonly as their primary professional role.



# Who Qualifies?

- Other professionals (surveyors, cartographers, landscape ecologists, planners, etc.) are typically not GIS professionals but they can be.
- GISCI does not look to restrict the use of GIS.
- GISCI looks to identify **GIS professionals** and separate them from casual users of the technology.



# Self-regulation

- Unlicensed professions regulate themselves.
- Voluntary certification programs are the most popular form of self-regulation.
- Certification protects the profession from those erroneously claiming to have expertise in the profession.



# Practitioner vs. Professional

- GISCI refers to non-certified GIS users as *practitioners*.



Julie Smith – Took an Introduction to GIS course at a local community college and can make a map exhibit with GIS software.



# Practitioner vs. Professional

- GISCI refers to certified GIS users as certified geographic information systems *professionals* or **GISPs**.



Julie Smith, **GISP...**



Julie Smith, **GISP** has met the minimum standards for educational achievement, professional experience, and manner in which she contributes back to the profession.

Julie Smith, **GISP** continues to educate and reeducate herself while preparing for renewal of certification.

Julie Smith, **GISP** has had her professional background scrutinized and reviewed by an independent third party organization. An Institute comprised of leading non-profit associations (AAG, GITA, NSGIC, UCGIS, GLIS, and URISA) focused on the application of GIS and geospatial sciences.

A person like Julie Smith, **GISP** lives in all 50 States and more than 30 foreign countries.

Julie Smith, **GISP** is more than a practitioner of GIS technology. Julie Smith, **GISP** is a professional.

Julie Smith, **GISP** must abide by higher guidelines for ethical behavior.





# What can Certification Provide?

- 1) Professional recognition program for established GIS professionals.
- 2) Means of identification that can be used by colleagues, employers, the public, and other licensed or certified professionals.
- 3) Implementation of a professional code of ethics that identifies bad practices and upholds good practices
- 4) Professional development yardstick through initial and renewal of certification requirements.





# That's Great, but What Can Certification Provide for Me?

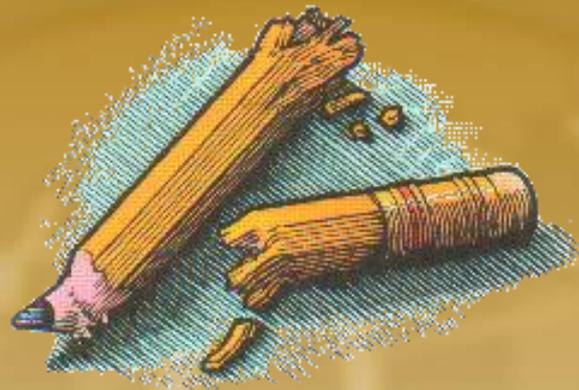
From the 2006 "State of the GISP" Survey

- 7% received a salary increase
- 20% received a one time monetary bonus
- 20% received a title change or promotion
- An additional 30% feel it improved how they are perceived in their organization.
- Almost 60% of the respondents to the 2006-07 URISA Salary Survey plan on applying in the next 3 years.
- 85% of employers were supportive of the effort
- **The Salary found a \$12,000 differential between the salaries of GISPs and non-GISPs for comparable positions.**
- Upon certification, GISCI sends a letter to your employer that highlights the achievement and explains how they can help with the renewal of certification of certification effort.



# No Formal Test!

(at this time, but it is coming soon)



- **Point-based** and **self-documented** –
- **1 decade of existence** – no changes have been made to the process.
- Based on **achievement in three categories**:
  - **Educational** attainment
  - Professional **experience**
  - **Contributions** to the profession



# A Point-based System

- GISCI Professional Certification created a system that adds objectivity (points) to the subjective (one's career)
- The URISA Certification Committee spent 4 years developing the points system
- The result of their effort is the GISCI Certification Program



# Benchmarks

- **EDUCATION** – Bachelor's degree with some GIS courses (or equivalent)
- **EXPERIENCE** – Four years in GIS application or data development (or equivalent)
- **CONTRIBUTIONS** – Annual membership and modest participation in a GIS professional association (or equivalent)





# Minimum Category Points

Educational Achievement	30 points
Professional Experience	60 points
Contributions to the Profession	8 points
Additional (Flex) Points in any of the three Categories:	52 points
<b>Total =</b>	<b>150 points</b>

Flex points allows one to make up for a lack in one category with an excess in another



# The Educational Achievement Section

There are 3 components to the Educational Achievement Section:

1. Credential Points (degrees in any field)
2. Course Points (geospatial technology courses)
3. Conference Attendance Points (days spent at relevant meetings and conferences)





# Credential Points

Master's Degree or Higher	25 pts
Bachelor's	20 pts
Associate's	10 pts
GIS Certificate*	5 pts

\*400 or more student activity hours

**Select the highest earned**





# **Conference Attendance Points**

- Conference attendance points are a result of the number of total days that the applicant has spent at meetings and conferences sponsored by professional societies and regional and local user groups.



# Professional Experience

Job experience is the most important factor in GIS qualifications because:

- Performing in a job provides learning experiences that allow **growth and expansion of skill sets**
- Work environment with other professionals allows **transfer of knowledge**





# Three Tiers of Professional Experience

- **Tier I: Analyst, System Design, Programming:** Typical tasks include database design or management, documentation or analysis of functional requirements, application design and evaluation, impl. management, and system administration. =

**25 Points Per Year**

- **Tier II: Data Compilation, Data Maintenance, Teaching:** Typical tasks include editing data, map composition, report generation, database maintenance, data validation, instructional training, and teaching. =

**15 Points Per Year**

- **Tier III: GIS User:** Typical tasks include utilization of applications involving geospatial technologies. Candidates may be involved in managing or coordinating GIS, but not involved in the technical implementation of GIS. =

**10 Points Per Year**



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# Professional Exp. Worksheet - Example

<b>EXP-W Worksheet:</b>		Example #1*				
<b>Title (from résumé):</b>		Senior GIS Analyst				
<b>Employer:</b>		Anytown, USA				
<b>Start Date:</b>	5/12/01	<b>End Date:</b>	3/3/06	<b>Years / Months Employed:</b> # of yrs + (# of months / 12) =		4.83
<b>Experience Level</b>		<b>% Full Time Equiv.</b>		<b>Years/ Months (from above)</b>	<b>Pts/Yr</b>	<b>Subtotal</b>
Tier 1 - GIS Programmer or Similar		.70	x	4.83	25	84.53
Tier 2 - GIS Technician, Educator or Similar		.25	x	4.83	15	18.11
Tier 3 - GIS User		.05	x	4.83	10	2.42
Supervisory Bonus (“%FTE” cannot exceed 1.00)		1.00	x	1.08	10	10.8
<b>Total this worksheet:</b> <i>(Add figure to EXP-S)</i>						<b>115.86</b>



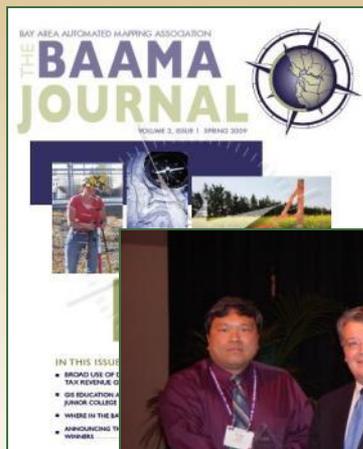
# 4-year Minimum

- Applicants must have a combination of at least 4 years (48 months) of professional GIS experience to apply for GIS Certification.
- If the applicant has met the minimum requirement with less than 4 years of experience then the applicant must wait until 4 years of professional GIS experience is accrued.



# Contributions to the Profession

Documents and activities that add to the professional body of knowledge for the **benefit of the profession as a whole** – not just the employer and client.





# **The 8 Categories of Contribution Points**

- GIS Publications
- GIS Professional Association Involvement
- GIS Conference Participation
- GIS Workshop Instruction
- GIS Conference Presentation
- GIS Awards Received
- GIS Volunteer Efforts
- Other GIS Contributions



# Additional Requirements

- **Code of Ethics & Rules of Conduct**
- **Renewal of Certification**
  - Every five years
  - Minimum points in two categories





“I think another good reminder is for people to have a good bit more than 150 points when they apply. Some people may not consider that they can/will mark things down if it is appropriate.

Another good tip to remind people of is to collect documentation as they go. At the end I did have to go through and try and find things for my application. It would have saved me a few hours had I just printed my receipts/certificates to begin with than trying to relocate them at the end.”



# Renewal of Certification

- Applicants must earn the following points in the five years following initial certification:

Educational Achievement	10 points
Professional Experience (No minimum)	0 points
Contributions to the Profession	10 points
Flex Points	20 points
<b>Total =</b>	<b>40 points</b>



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# Recognizing a GISP

- Julie Smith, GISP



*This certifies that*

**Julie Smith**

*has met the minimum standards for ethical conduct and professional practice as established by the  
GIS Certification Institute for recognition as a*

**Certified GIS Professional (GISP)**

*and is therefore entitled to all the rights and privileges thereunder.*

*This proof of certification shall expire or be deemed inactive on 01/29/2009  
unless, by that date, the individual shall have successfully completed recertification.*

*Certification Number 000227103 Date Certified 01/29/2004*

*Martha A. Lombard*

*GISCI President*

*William E. Hayball*

*William Hayball  
GISCI Certification Chair*

*Scott Grant  
GISCI Certification Manager*



# **The Application Review Process**

- The GISCI Staff performs a **QUANTITATIVE** review.
- The GISCI Review Board performs a **QUALITATIVE** review.



# Staff Review

- Will determine if the points have been added and documented correctly.
- Will make a recommendation of the applicant's status to the Review Committee.
  - Accepted Outright
  - Rejected Outright
  - Pending Further Review



# **Review Committee**

- Are current GISPs who have held their certification for at least one year.
  - Volunteers with GIS backgrounds and credentials.
- Will make the final determination on ALL manners of points, documentation, and status.
- Their decisions are final and settled by simple majority.



# **Review Committee**

- They will perform independent reviews and return their decisions to GISCI staff.
- They will make periodic recommendations on how to improve the program to the BOD and Oversight Committee.



# **Notifying the Applicants**

- All accepted/rejected candidates will be notified of their status hopefully within 2-3 months of submittal.
- Accepted candidates will receive a congratulatory letter and a certificate.
- Rejected candidates will be encouraged to resubmit.



# **Certification Fee**

- The cost of GISCI certification is \$250.
- Rejected applicants receive \$150 back; a \$100 processing fee is charged.
- Covers five years of certification with no annual fee assessed.
- Renewal of Certification fee is \$115.



# Current Activities

- Certification Committee
- Review Committee
- Outreach Committee
- Ethics Committee





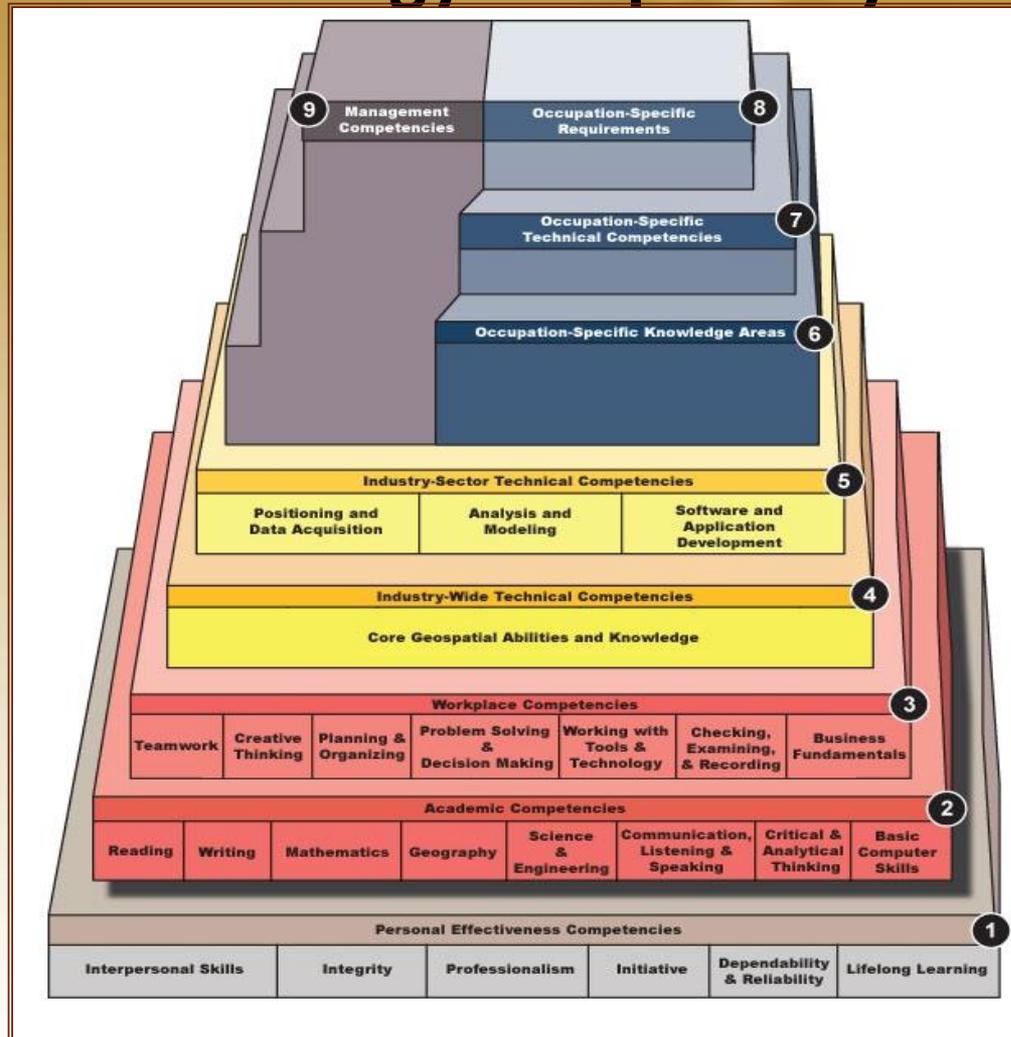
# Changes in the Works

- By 2015 an exam component will be added to this model at the latest the end of second quarter. Most certification programs require some form of examination.
- Rebecca Somers, of Somers-St.Clair, has been contracted to write the exam and vet the process.
- GISCI is currently conducting a Job Analysis Survey to help build the test



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The exam will be based in part on the geospatial technology competency model





## As well as the GIS&T body of knowledge and industry best practices

# Geographic Information Science and Technology Body of Knowledge

**Geographic Information Science & Technology Body of Knowledge**  
 Edited by David Williams, Michael Dillman, Ann Johnson, Karen Kemp, Ann Taylor Leach, Bradford Pless, and Elizabeth Wynn  
 UNIVERSITY CONSORTIUM FOR GEOGRAPHIC INFORMATION SCIENCE

<b>Analytical Methods</b> <b>AM0 Academic and analytical skills</b> AM1 Problem-solving AM2 Analytical aptitude AM3 Critical thinking and problem-solving AM4 Data literacy AM5 Communication skills AM6 Teamwork and collaboration AM7 Professionalism and ethics AM8 Career development AM9 Lifelong learning <b>AM10 Basic analytical operations</b> AM11 Data entry and manipulation AM12 Data cleaning and validation AM13 Data visualization AM14 Data analysis and interpretation AM15 Data reporting and presentation <b>AM16 Analysis of surfaces</b> AM17 Topographic analysis AM18 Remote sensing analysis AM19 Spatial modeling AM20 Spatial simulation	<b>Cartography and Visualization</b> <b>CV1 History and trends</b> CV2 Professional standards CV3 Design principles CV4 Map design and production CV5 Map use and evaluation <b>CV6 Design and visualization</b> CV7 Design process CV8 Design elements CV9 Design evaluation <b>CV10 Design applications</b> CV11 Cartographic design CV12 Web-based design CV13 Mobile design CV14 Emerging design <b>CV15 Design and visualization</b> CV16 Design process CV17 Design elements CV18 Design evaluation <b>CV19 Design applications</b> CV20 Cartographic design CV21 Web-based design CV22 Mobile design CV23 Emerging design
<b>Conceptual Foundations</b> <b>CF1 Philosophical foundations</b> CF2 Professional standards CF3 Design principles CF4 Map design and production CF5 Map use and evaluation <b>CF6 Design and visualization</b> CF7 Design process CF8 Design elements CF9 Design evaluation <b>CF10 Design applications</b> CF11 Cartographic design CF12 Web-based design CF13 Mobile design CF14 Emerging design	<b>Design Aspects</b> <b>DA1 The scope of GISAT</b> DA2 Design process DA3 Design elements DA4 Design evaluation <b>DA5 Design applications</b> DA6 Cartographic design DA7 Web-based design DA8 Mobile design DA9 Emerging design
<b>Conceptual Foundations</b> <b>CF1 Philosophical foundations</b> CF2 Professional standards CF3 Design principles CF4 Map design and production CF5 Map use and evaluation <b>CF6 Design and visualization</b> CF7 Design process CF8 Design elements CF9 Design evaluation <b>CF10 Design applications</b> CF11 Cartographic design CF12 Web-based design CF13 Mobile design CF14 Emerging design	<b>Data Modeling</b> <b>DM0 Basic storage and retrieval</b> DM1 Data structure DM2 Data access DM3 Data security <b>DM4 Database management</b> DM5 Database design DM6 Database implementation <b>DM7 Transaction data models</b> DM8 Data integration DM9 Data interoperability DM10 Data sharing

<b>Data Manipulation</b> <b>DM0 Basic storage and retrieval</b> DM1 Data structure DM2 Data access DM3 Data security <b>DM4 Database management</b> DM5 Database design DM6 Database implementation <b>DM7 Transaction data models</b> DM8 Data integration DM9 Data interoperability DM10 Data sharing	<b>Geocomputation</b> <b>GC0 Emergence of geocomputation</b> GC1 Computational aspects and applications GC2 Geospatial algorithms (GA) GC3 Cellular Automata (CA) GC4 Heuristics <b>GC5 Geospatial Data</b> GC6 Earth geometry GC7 Land parceling systems GC8 Geospatial systems GC9 Map projections GC10 Land surveying and GPS	<b>GIS&amp;T and Society</b> <b>GS0 Foundations of geographic information science</b> GS1 Economic aspects GS2 Ethical aspects GS3 Use of geographic information in the public sector GS4 Geographic information as a profession <b>GS5 Organizational &amp; Institutional Aspects</b> GS6 Origins of GISAT GS7 Managing the GIS system GS8 Interdisciplinary aspects GS9 Faculty roles GS10 Organizational structure and procedures GS11 Coordinating organizations GS12 Professional standards and certification
<b>Geocomputation</b> <b>GC0 Emergence of geocomputation</b> GC1 Computational aspects and applications GC2 Geospatial algorithms (GA) GC3 Cellular Automata (CA) GC4 Heuristics <b>GC5 Geospatial Data</b> GC6 Earth geometry GC7 Land parceling systems GC8 Geospatial systems GC9 Map projections GC10 Land surveying and GPS	<b>GIS&amp;T and Society</b> <b>GS0 Foundations of geographic information science</b> GS1 Economic aspects GS2 Ethical aspects GS3 Use of geographic information in the public sector GS4 Geographic information as a profession <b>GS5 Organizational &amp; Institutional Aspects</b> GS6 Origins of GISAT GS7 Managing the GIS system GS8 Interdisciplinary aspects GS9 Faculty roles GS10 Organizational structure and procedures GS11 Coordinating organizations GS12 Professional standards and certification	<b>Published by the AAG</b>  The Geographic Information Science and Technology Body of Knowledge may be ordered online from the AAG at <a href="http://www.aag.org/bok/">www.aag.org/bok/</a> or by mailing or faxing the form to: AAG Publications, 1710 Slatersville St., N.W., Washington, DC 20009; Fax: 202-234-2744. Name: _____ Address: _____ <input type="checkbox"/> Check enclosed <input type="checkbox"/> CNR CARD payment (MC/VISA) # _____ Exp. _____ Signature: _____ Copies at \$20 each _____ Plus shipping _____ Total \$ _____

<http://www.aag.org/bok/>



## Along with the Exam....

- Portfolio documentation will be required.
- There will be a professional contribution and education requirement.
- Exam can be taken by students and those having less than 4 years of experience to start the registration process.



# GISP information

- Current GISP's are not required to take the exam for re-certification.
- Unless...
  - The GISP fails to renew their certification and then will need to start the certification process from the beginning which includes the exam.



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