



By Mike Renslow, Chair, ASPRS Evaluation for Certification Committee

ASPRS Certification Program

The Articles of Incorporation of the American Society for Photogrammetry and Remote Sensing (ASPRS) state that ASPRS will exert its influence towards the betterment of standards and ethics. A growing number of scientific and technical disciplines depend on photogrammetry and the mapping sciences for reliable measurements and information. It is in the interest of those who provide photogrammetric and mapping sciences services, as well as the users of these services, that such information and data be accurate and dependable. To this end, ASPRS has been actively working on developing its certification program aiming at establishing and maintaining high standards of ethical conduct and professional practice among photogrammetrists, mapping scientists, technologists, and interns.

The intent of the ASPRS certification is focused on certifying individuals for recognition by successfully completing a process established by their peers, and distinguishing themselves from the general body of practitioners in their field. In the last forty-two years, as science and technology have changed, the ASPRS Certification Program has dramatically grown and now encompasses the full breadth of the geospatial sciences.

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CERTIFICATION VS. LICENSURE

There is a distinction between *certification* and *licensure*. Simply stated, ASPRS certification is official recognition by one's colleagues and peers that an individual has demonstrated professional integrity and competence in his or her field. As such, the ASPRS voluntary certification program is considered “specialty certification.” It is not a substitute for licensure as, for example, is required for a Land Surveyor. Licensing is a legal act on the part of states to protect the public health, safety, and welfare. It is a procedure by which various state and local governments require the licensing of certain professions, practices, trades, etc. under formal statutes and ordinances to protect the well-being of its citizens. Licensure may be required by your local state, county, etc. whether or not you secure certification.

ASPRS CERTIFICATION PROGRAM DEVELOPMENT TIMELINE

Program of Certification of Photogrammetrists

The Professional Activities Committee, after several years of careful study, developed a program for certification of photogrammetrists. The origins of the ASPRS Certification Program were approved by the American Society of Photogrammetry (ASP) Board of Direction at its meeting in Washington, D.C. on March 13, 1975.

Development of the Certified Mapping Scientist – Remote Sensing Program

With the advent of satellite imagery and remote sensing in the early 1980s, the program added a new certification for Certified Mapping Scientist-Remote Sensing, which was followed by the emergence of GIS, which resulted in a Certified Mapping Scientist-GIS/LIS in the early 1990s. The ‘Certified Mapping Scientist’ designation validates that applicants must have a working knowledge of photogrammetry, remote sensing, and GIS (plus earth science, standards, ethics, and practice issues).

Development of the Certified Mapping Scientist – GIS/LIS Program

On March 28, 1991, the ASPRS Board of Directors approved a proposal made by the National Photogrammetrist Recognition Committee of the Professional Practice Division to modify the original program to include two new categories of certification: Mapping Scientist- Remote Sensing, and Mapping Scientist - GIS/LIS. At the same time, the Board approved a recertification program that assures that certified persons keep up with the technology that is rapidly changing.

Introduction of the Written Exam Requirement

Until 1999, the ASPRS certification process was based on peer review of an application and four confidential referenc-

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Information on how to apply for certification¹, requirements², educational credits³, and administrative review procedures⁴ are outlined below.

How to Apply

Persons interested in applying for certification or recertification, should follow the 7-step general procedure found on the ASPRS Website⁵. Applicants for professional certification must successfully complete two criteria to become certified:

- Pass a Peer-Review of experience and training and provide four personal references, and
- Pass the Written Examination for the Specialty Area Certification.

Workshops designed to help prepare applicants for Certification are also available. The workshop agenda begins by explaining the purpose and format of the certification exam (see the ASPRS website).

Workshop Topics

- Purpose of the exam
- Photogrammetry
- Remote Sensing
- Geographic Information Systems
- Lidar
- Unmanned Autonomous Systems

ASPRS Evaluation for Certification Committee & Review Committees

Chair Michael Renslow
Board Liaison Current President—Rebecca A. Morton
Staff Contact Jesse Winch

Sub-Committee	Chairs	Review Committee
Photogrammetry	Alan Mikuni	Michael Zoltek, Frank Taylor
Remote Sensing and GIS/LIS	Raquel Charrois	Paul Ogino, Thomas Jordan, Lindi Quackenbush
Lidar	Karl Heidemann	Sanchit Agarwal, Alvin Karlin

QUESTIONS?

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1 https://www.asprs.org/certification-program/certification-and-recertification-guidelines.html#HOW_TO_APPLY
 2 <https://www.asprs.org/certification-program/certification-and-recertification-guidelines.html#Requirements>
 3 https://www.asprs.org/certification-program/certification-and-recertification-guidelines.html#EDUCATIONAL_CREDITS
 4 https://www.asprs.org/certification-program/certification-and-recertification-guidelines.html#ADMINISTRATIVE_PROCEDURES
 5 www.aspr.org

es. On October 28, 1997, the ASPRS Board of Directors approved a modification to the Certification Program by requiring applicants to pass a written examination. This requirement took effect on January 1, 1998. To develop examinations, the Certification Committee established an Exam Development Working Group composed of private, public, and academic practitioners. In the mid-1990s, the examination fulfilled practices in keeping with similar science and engineering certification programs conducted by like organizations (such as NSPS, NCEES, and ASCE). Developing the three examinations took three years, and became active in January 1999.

Student Interns / Provisional Certifications

In May 2006, the ASPRS Board of Directors approved the Provisional Certification Program which was recommended by the Evaluation for Certification Committee (ECC). Students preparing to graduate within one year in spatial science programs may apply for Certification and become “provisionally certified” until they complete the on-job experience requirement. Provisionally certified individuals have a specified period of time to achieve the on-job experience at which time, they will become fully certified. The ECC has re-designated provisional certification as the very successful student-driven Geospatial Intern Program.

Development of the Lidar Certification Programs

In response to the Lidar practitioner community, the Certification Committee developed a certification for Certified Mapping Scientist-Lidar and Lidar Technologist. Both programs began in January 2015. In keeping with the current NCEES accepted methodology, the Committee now follows the DACUM (Development of a Curriculum) process. The initial step is to develop a Body of Knowledge (BoK), which is five or six short statements describing the general knowledge required for the specialty area. To support each BoK item, specific tasks are identified that describe performance (usually five to seven tasks). With an acceptable BoK and Tasks, the development of assessment items (i.e., exam questions) are created. The final step in the exam development process is to conduct a “cut-score” for the new assessment items which is to have a small group of lidar practitioners (professional and technologist) take the test, and then process the results using the NCEES model. The final exams for lidar certification also have content addressing basic photogrammetry, remote sensing, and GIS concepts.

Development of the UAS Certification Programs

Since October 2015, the Committee has been developing a UAS Certification which is supported by the new ASPRS Unmanned Autonomous Systems (UAS) Technical Division. Following the DACUM process, the cut-score

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with textbooks from major publishers that provide a wealth of instructional materials will need to devote considerable effort to classroom lecture and activities.

For the most part, the information appears accurate, although some additional detail about some of the challenges in the design and application of UAS would be useful to help highlight potential pitfall to those new to the field. For example, major challenges to UAS remote sensing such as bidirectional reflectance function or avoiding common mistakes that abound in the UAS remote sensing industry such as using radiometrically uncorrected data to calculate vegetation indices and model biophysical parameters are not addressed or mentioned, but are important to ensuring quality data products

As with any book that covers a technology that is rapidly evolving and advancing, some of the details already seem out of date. Recent developments such as the new FAA rules did not make it into the book as it went to press, which the authors note in the epilogue. Other areas that are lacking in the book are details of the technical aspects of applied UAS such as sprayers for agriculture or advancements in computer vi-

sion that now allow consumer-grade UAS to track objects. One curious note is the use of the term “UAS” to refer to unmanned aircraft systems, rather than unmanned aerial systems as defined by the FAA and commonly used across the industry. This adds yet another term to the plethora of terms that refer to unmanned aerial systems including drones, radio-controlled (RC) aircraft, remote piloted vehicles, semi-autonomous aircraft, and unmanned aerial vehicles, among others.

Despite some detractors, the book is a good text on all aspects of UAS from design to application to regulation and policy. While the text is geared towards technical or engineering students, the book provides useful information for any student or even professionals interested in UAS, even if all the technical details are not necessarily of required for operations. While many researchers and professionals seek turn-key UAS solutions for UAS remote sensing, the background provided by this book will help any UAS user understand and appreciate the design and development of these systems.

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for assessment items is being conducted, and a CMS-UAS Professional and UAS Technologist certification programs will be submitted to the ASPRS Board for approval and implementation in June 2017.

Recertification

To remain actively certified, currently certified practitioners at the professional level must be recertified every five years; at the technologist level, every three years. The recertification process requires an application, fee, and four personal references. If recertification does not occur within the required time frame, the individual becomes “in-active.” If the in-active status exceeds 1 year, an individual may become active by applying for and passing the exam in their field.

Accreditation

On January 1, 2013, the ASPRS professional and technologist certification programs each received accreditation from the Council of Engineering and Scientific Specialty Boards (CESB). CESB voted to approve accreditation for the professional Certified Photogrammetrist (CP), Certified Mapping Scientist-Remote Sensing (CMS/RS) and Certified Mapping Scientist-GIS/LIS (CMS/GISLIS) programs, along with three related technologist certification categories – Photogrammetric Technologist, Remote Sensing Technologist and GIS/LIS

Technologist. During the review process leading to accreditation, CESB required ASPRS to make several minor changes to the Program, including: shifting the continuing education requirement from the previous proprietary points-based system to Professional Development Hours (PDH); increasing the PDH requirement from 75 hours to 100 hours for the professional recertification and from 50 hours to 60 hours for the technologist recertification.

CONCLUSION

The ASPRS certification program as approved is entirely voluntary. It applies equally to persons associated with the several subdivisions of photogrammetry and the mapping sciences, which by Society definition includes aerial photography, photogrammetric photographic interpretation, geographic information systems, remote sensing systems, and land information systems. However, in accordance with the Society’s Code of Ethics persons certified should decline to undertake any work within, or related to the fields of photogrammetry and mapping sciences that is outside their range of competence.