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How to Develop Comprehensive Aquatic Programs in Higher Education

Leland Yarger

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Historically, institutions of higher education in the United States have been at the center of growth and understanding in our society. Individuals in higher education have both identified where societal needs exist and made proactive efforts to address the needs over the long run. This process appears to have failed to hold true in aquatics. It is well documented that few academic institutions currently offer either major or minor curricula or degrees in aquatics.

I think that aquatic higher education started to decline a few decades ago for several reasons. Some of these reasons include the fact that 20 years ago there were tightening budgets in state funding for academic institutions. Aquatic programs with a low representation of both faculty and students became an easy discipline to cut or simply underfund. As budgets continued to be cut and state subsidies continued to drop from almost 50% to less than 25% of university budgets, there were fewer options for continuing or expanding aquatic-degree programs. To be taught appropriately, most aquatics-related courses require faculty with very specific experiences, qualifications, and expertise who must retain specialized certifications. In addition, some of these same aquatic management or leadership courses require quite specialized equipment that is an expensive burden for college organizations to purchase and maintain. When we look at the operational sector versus academia, it is easy to see through wages and compensation that educational institutions have a difficult time retaining faculty, who can make \$10,000–20,000 more per year as aquatic professionals in the operational sector for the same or lower qualifications. I see this with our graduates in aquatics; each of our graduates has started at a higher pay rate than our lowest paid faculty member. In addition, because of the typical expectations for continually conducting and publishing research as a member of the professoriate, it is very difficult for aquatics-related faculty to earn tenure and be promoted because aquatics is not always held in high regard in academia. So, not only do they get paid less, but they also have much greater job demands than would be true in the operational sector.

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Need for Professionals

Every couple of weeks, all year long, I receive calls from employers looking for aquatic professionals. Employers include organizations from all over the county, such as YMCAs, city parks and recreation departments, colleges, and universities, as well as a variety of health-club facilities. To look at the demand for aquatic professionals, simply visit position-announcement Web sites including clubswim.com, bluefishjobs.com, usajobs.com, and careerbuilder.com.

At Ball State University, our aquatic majors are required to complete a 12-credit-hr internship that consists of 540 hr of internship work, usually over a full semester. Many employers are disappointed to see our internship and field-experience students leave when they are finished with their field program. Employers often comment on how great it was to have someone working with them who really understands aquatics and is good in her or his chosen field. In a few cases, our students have secured jobs simply because of their internship experience and the qualifications they obtained in the curriculum at Ball State University. This curriculum includes a minimum of three aquatic-instructor certifications and 11 basic aquatic certifications (see Table 1).

Few Programs—High Demand

I think one reason the aquatic industry has had so many recent operational growing pains is that there are few options through which aquatic personnel can receive advanced education and training. There are fewer than 35 postsecondary institutions with aquatics-specific curriculum programs. Thirteen of these institutions have aquatic minors, and only one has a 4-year major program (Crume, 2004). According to the 2002 National Intramural Recreational Sports Association directory, more than 500 senior colleges and universities have aquatic facilities.

According to the National Sporting Goods Association's (NSGA) 2005 sports-participation report, swimming ranks second at 58 million, behind only exercise walking (reportedly at 86 million who participated more than once in various sports in the United States in 2005). The NSGA also reports an 8.5% growth in swimming during 2005 over the 2004 sport-participation report (NSGA, 2006). With the estimated number of swimming pools in the United States exceeding 6 million, it is easy to see that demand for aquatic recreation is high (Aquatics International, 2003).

Suggestions for Getting Started

Once an institution of higher learning decides to pursue its own aquatic program, there are many areas the organization must develop and monitor related to the nascent program. A major difference between typical academic programs and aquatic programs is that traditional academic programs such as physical education, biology, or political science are taught by faculty with a broad knowledge base in the specific discipline being taught. In contrast, aquatic programs rely primarily on knowledge based on experience in the field, along with specific qualifications that must be verified through topic certifications.

Table 1 Certifications Available Through Ball State University's Aquatic Bachelor's Degree Program

Course number and name	Certification agency	Basic certifications	Instructor certifications
Required courses			
PEP 190 Introduction to Aquatics	ARC		Fundamentals of Instructor Training (FIT)
PEP 216 Lifeguard Training	ARC	Lifeguard and First Aid, CPR/PR and AED, Oxygen Administration and Blood-Borne Pathogen	
PEP 260 Emergency Response	ARC or AAOS	Emergency Response or First Responder and CPR/PR	
PEP 315 Water Safety Instructor	ARC		Water Safety Instructor (WSI)
PEP 316 Aquatic Fitness Instructor	ARC/ AAPAR		Aquatic Fitness Instructor (AFI)
PEP 404 Lifeguard Instructor	ARC		Lifeguard Training Instructor (LGI)
PEP 454 Pool Operations	NSPF/YMCA	Certified Pool-Spa Operator/ Pool Operator on Location	

PEP 455 Aquatic Facility Management	NSPF	Certified Pool–Spa Inspector
PEP 458 CAM/Leadership and Staff Development	Aquatic Partners	Aquatic Administrator (CAA)
Elective courses (6 aquatic credits minimum)		
PEP 215 Aquatics	ARC	Learn to Swim and Basic Water Rescue
PEP 219 Aquatic Sports Officiating	ARC/IHSAA	Safety Training for Swim Coaches/Swimming Official
PEP 220 SCUBA	YMCA	Basic SCUBA Diving
PEP 221 Advanced SCUBA	YMCA/DAN	SCUBA Lifesaving Accident Management (SLAM)/Oxygen Provider
PEP 224 Dive Master	YMCA	Dive Master
PEP 301 CPR/First Aid Instructor	ARC	Workplace and CPR/PR Instructor
PEP 120 Special Topics (topics can include at least 7 different classes)	YMCA	Wreck Diver, Search and Recovery, Underwater Navigation, Nitrox, Equipment Service

Note. ARC = American Red Cross; CPR/PR = CPR for the Professional Rescuer; AED = automated external defibrillation; AAOS = American Academy of Orthopaedic Surgeons; AAPAR = American Association for Physical Activity and Recreation; NSPF = National Swimming Pool Foundation; CAA = Certified Aquatic Administrator; IHSAA = Indiana High School Athletic Association; DAN = Divers Alert Network.

The essential key to aquatic-program success is recruiting and retaining a qualified aquatic professional to lead the program. This individual must possess at least a master's degree, demonstrate extensive experience in the aquatic field, and hold valid certifications in appropriate areas such as Water Safety Instructor (and Instructor Trainer), Lifeguard Training (and Instructor Trainer), Certified Pool Operator, First Aid and CPR, and other specialized areas, depending on duties and expertise. It is often difficult to find an individual with all these qualifications, especially because of the lack of graduate studies in aquatics.

I suggest that the following steps be taken, in order, when starting a new aquatic (either major or minor) program at a college or university:

1. Hire a qualified program leader.
2. Create a forward-looking curriculum.
3. Establish credit-bearing courses that simultaneously provide industry-recognized certification for students.
4. Constantly groom relationships with the certification agencies, as well as field-experience sites.
5. Hire highly qualified program faculty (both full-time and part-time).
6. Aggressively promote the program to industry professionals and potential placement sites.

Let us explore each of these steps in more depth.

Hire a qualified aquatic program leader. The aquatic leader whom the institution hires must have a strong entrepreneurial spirit because of the uniqueness of an academic aquatic program. She or he must be self-motivated to accomplish program development and administration along with teaching courses, advising, and other academic duties. Program leaders beware: This is not a 9-to-5 weekday job. The program leader must have actual working experience in the field. Other critical leadership requirements include

- Holding current basic certifications in Lifeguard Training, First Aid, CPR for the Professional Rescuer, AED, Oxygen Administration, Blood-Borne Pathogens, and Pool Operations.
- Holding current instructor certifications in Lifeguard Training, Water Safety Instruction, Pool Operations, and, preferably, First Aid/CPR.
- Holding instructor-trainer certifications and being authorized to teach Lifeguard Instructor Training and Water Safety Instructor courses as a minimum.
- Having completed formal postsecondary aquatic education: A 4-year degree in aquatics or a related field (physical education) is strongly preferred, with a minimum of a minor in aquatics.
- Having completed or being in the process of completing a graduate degree. A doctorate or master's in education with specific study in curriculum development, higher education, or kinesiology-related specialization is preferred. Because there is only one program in the United States with a 4-year aquatic program, actual aquatic work experience is most often more important than a doctorate from an unrelated, secondary discipline.

- Documented, verifiable teaching experience of aquatics-related courses at the instructor-trainer level for aquatics-related training agencies.
- Lifeguarding experience of 2 years minimum.
- A minimum of 3 years of aquatic management experience. This should include both training and supervision of aquatic staff.
- One year of aquatic operations experience specifically involving circulation, filtration, and sanitation systems at various types of pool facilities.
- Knowledge of other aquatic topic areas including but not limited to SCUBA diving, adapted aquatics, aquatic fitness, watercraft training, aquatic recreation opportunities, aquatic education, and coaching swimming and/or diving.
- Experience with and evidence of research expertise as demonstrated by professional and scholarly presentations and publications. If the program leader is expected to obtain tenure and promotion at a professorial tenure-track rank (e.g., associate or full professor), research expertise and productivity are an absolute must. Alternatively, the position can be configured as an instructor or lecturer position that does not have the mandatory research and publication expectations but substitutes teaching and service requirements instead.

Create a forward-looking curriculum. Develop a curriculum that includes current industry requirements but also helps lead industry change. Forecasting where the industry is going is difficult at best and nearly impossible if the aquatic faculty and staff have not worked directly in the field recently. Program areas should include

- Required college or university core or general-education courses that aspire to form well-educated and well-rounded individuals
- Science emphasis that includes anatomy, kinesiology, and math (algebra)
- Aquatic-emphasis courses that include both aquatic and related skill courses such as swimming biomechanics, fitness principles, management, accounting, and legal principles
- Recognized aquatic certification and competency-based programs

Establish credit-bearing courses that also provide industry-recognized certification for students. A short list of courses common to most current aquatic minor programs in the United States includes

- Basic-level swimming courses
- Lifeguard training
- Water-safety instructor
- Aquatic fitness instructor
- First Responder training
- Lifeguard instructor
- Pool operator and aquatic facility management

In addition to the traditional aquatic courses, the program director and faculty are wise to incorporate related courses drawn from business (e.g., accounting, personal finance), education (e.g., methods, pedagogy), physical education and kinesiology (e.g., biomechanics, exercise physiology, motor development and learning), and communications (e.g., speech and rhetoric), especially if designing an aquatic major. The forward-looking aquatic curriculum must provide students with the kind of future skills and dispositions that they will need to be successful in an ever-changing future.

Constantly groom relationships with the certification agencies, as well as field-experience sites. The program leader must stay in constant virtual and personal contact with certification training agencies for material updates and agency volunteer-leadership duties. Establishing some type of Web site, listproc, or other electronic communication system along with regular telephone contacts is a particularly effective means to make and maintain such relationships.

Hire highly qualified program faculty (both full-time and part-time). The program faculty must have working experience similar to their areas of specialty. The staff's collective experience and education should mirror the program leader's qualifications, with the exception that each staff member emphasizes her or his specific discipline or area of expertise. For example, SCUBA instructors must meet the criteria established by the SCUBA training agencies (e.g., PADI, NAUI), and they must provide documentation of teaching history that is verifiable with the training agency.

In today's college or university environment, one should expect and accept the fact that it is unlikely to have the required three or more full-time aquatic staff employed. Although the program leader must be full-time to be most effective, it is certainly possible and even feasible to employ a variety of part-time staff to cover instructional and certification needs. In fact, sometimes local expertise might include a faculty or staff member in a related or even unrelated college department who can teach on overload in the evening or on weekends. Other qualified individuals (i.e., with necessary expertise, experience, certifications, and usually a master's degree) who live in the community or region can provide vital support to the major or minor program. The use of adjunct and part-time instructors is similar to how many other major programs (e.g., English composition, education, recreation) staff their instructional needs.

Aggressively promote the program to industry professionals and potential placement sites. The college or school in which the aquatic program is housed must be committed to expend resources in equal proportion to other institution disciplines for successful recruitment, retention, and eventual graduation of high-caliber aquatic students. In addition, the academic unit must be willing to provide resources for new equipment and its upkeep, as well as for maintaining the aquatic facilities. It is only when one can point to the quality of faculty, students, and facilities that the aquatic program will gain credibility among other aquatic professionals, as well as with field sites for student placements.

Conclusions

The specific details about the mission, curriculum, and operation of each aquatic program come from that program's leadership. Because changes in the aquatic industry occur rapidly, the institution's aquatic leadership must constantly review and predict where the industry is going. This happens through repeated training and continuous professional development such as active involvement with professional organizations and regular conference attendance. Because there are currently so few aquatic programs, it is incumbent on both existing and proposed programs to be highly regarded by maintaining rigorous standards for student achievement.

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