

# From the Classroom to the Real World: Do Grades Matter?

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## ABSTRACT

**PURPOSE:** Fieldwork has become a capstone experience that marks completion of an undergraduate's preparation. Prior to that experience, students' academic performance is presumed predictive of success in the field. But does success in the classroom predict success in the field? The purpose of this study was to explore the relationship between students' academic performance and their fieldwork success as entry level health educators. **METHODS:** Students' individual course grades and cumulative GPA were examined relative to community-based preceptors' evaluations of student performance of NCHEC Areas of Responsibility. **RESULTS:** Observed correlations were consistent with expectations: the stronger students' academic performance, the better they performed as interns. Overall GPA was less impressive than students' majors coursework in establishing success on the job. **CONCLUSIONS:** Over time, classroom performance was surpassed by qualities learned on-site and reflective of other facets to effective performance as an entry level professional. Given this pattern of association, coursework appears to prepare students for their initial internship responsibilities. By the internship's conclusion, however, coursework was less likely to link with on-the-job success, suggesting the value-added impact of internship relative to coursework. **RECOMMENDATIONS:** Undergraduate preparatory programs would be well-advised to work with students' preceptors to confirm their understanding of the NCHEC Areas of Responsibility and how faculty use their assessments to inform curricula. Grades matter to the professional preparation of undergraduates. Our job as faculty is to make sure that our grading as well as our classes continue to matter in preparing students for life in the real world.

**KEYWORDS:** Internship, Curriculum, Professional preparation

## INTRODUCTION

Undergraduate preparation programs strive to support students' launch as health education professionals. Given multiple curricular demands, programs choose among competing educational opportunities in constructing their curricula. Too often, programs have to shoehorn students' preparation into the credits available, without extending time to graduation.

When developing curricula, programs can turn to supports such as the National Commission for Health Education Credentialing (NCHEC, 1986) and discussions of the educated

citizen and Public Health 101 (Riegelman, 2010) for guidance. Supported by such resources, faculty craft coursework in content areas deemed relevant to life as a health education professional. Proficiency in writing (Galer-Unti & Tappe, 2006) and the ability to think critically -- personal preparedness outside the parameters of any specific course-- also figure into curricular development.

CHES certification is intended to indicate mastery of entry-level health educator competencies (Lindsay et al., 2000). No such dialogue has yet to focus on whether prevailing approaches to undergraduate preparation truly

succeed in preparing entry-level professionals for life upon graduation (Galer-Unti & Tappe, 2006). Portfolio review and students' GPA are among markers used to establish students' ability to meet course objectives and the adequacy of their preparation.

But a student's transcript can be misleading. Not all faculty invoke the same rigor or system when grading. Nor do students' grades necessarily reflect their true ability (Murray, Merriman & Adamson, 2008). The risk of grade inflation also cannot be ignored (Murray et al., 2008). With the health sector's continued anticipated growth (Bureau of Labor Statistics, 2012), undergraduate preparation programs and potential employers may need to make difficult decisions regarding their applicants. Whether grades provide a useful distinction among health educators at any point in their professional trajectory has yet to be determined (Rojas-Guyler, Cottrell, & Wagner, 2006).

Community-based internships (sometimes referred to as 'fieldwork') are the capstone to many undergraduates' professional preparation (Cleary et al., 1998; Rojas-Guyler et al., 2006). Internships enhance students' classroom-based development and capacity to perform as professionals (Barnett, 1995; Lindsay, Hanks, Neiger & Barnes, 2000). Internships also improve employment options (Lindsay et al., 2000), help students develop a sense of work value, and ease their transition into the real world (Taylor, 1988).

Just as grading classroom work is not straightforward, so too is it challenging to assess students' performance as interns (Bogo et al., 2004; Kemper et al., 2004). Nonetheless we assume that if a student successfully completes coursework and fieldwork, reflected in satisfactory grades or other forms of evaluation, s/he should be "academically, behaviorally and ethically" fit to practice health education (Cole & Lewis, 1993).

Some disciplines have examined the association between undergraduate academic success and graduate-level or real world performance (e.g., Greenburg, Durning, Cohen, Cruess, & Jackson, 2007; Ragothaman, Carpenter & Davis, 2009). Little research exists, however, to predict health education students' success after completing undergraduate coursework (Rojas-Guyler et al., 2006). Tests of

knowledge, a typical foundation for undergraduate grading, are dismissed by employers as insufficient indicators of ability (Peter D. Hart Research Associates, Inc., 2008). Employers go on to report that students' quantitative reasoning, writing and global knowledge require increased attention (Peter D. Hart Research Associates, Inc., 2008). Professional partners of health education observe that students' performance in the field is less related to knowledge, as captured by GPA, and more likely linked to students' professional behaviors (Barnett, 1995; Breen & Murphy, 2009; May, Morgan, Lemke, Karst, & Stone, 1995). Put differently, students may perform well academically but be unable to function in the professional world (Cook, 2010), having limited abilities to apply their classroom knowledge to the actual practice of one's discipline (Peter D. Hart Research Associates, Inc., 2010).

## PURPOSE

The mission of health education professional preparation programs is to develop the best possible entry level professional (Rojas-Guyler et al., 2006). We assume that grades discriminate students' preparedness for the field. Internships provide additional opportunities to assess students' ability to function professionally. The purpose of this study was to explore whether students' performance in the classroom linked to their performance as entry-level health professionals in fieldwork placements. Is there a difference in faculty vs. practitioners' assessment of student performance in the real world? In brief---do grades matter?

## METHODS

### Program Overview

In the program from which these data derive, internship is a full-time capstone experience allowed only to students who earned the grade of 'C' or better in their majors' courses. Internships are restricted to sites that meet established criteria (e.g., provide professional experience consistent with the student's undergraduate preparation). When multiple students request the same placement, the student with the higher GPA is allowed to interview for that internship site.

Once students begin their internship, they are in regular contact with a designated faculty

supervisor who receives the student's updates and reports; and visits the student and on-site preceptor throughout the internship to monitor the student's performance. These interactions also provide an opportunity to review on-site preceptors' required midterm and final evaluations of the student. At the end of each internship, faculty supervisors award students a grade of satisfactory (or unsatisfactory) based on their performance.

With the exception of internship, undergraduate grades range from 'A' through 'F'. The letter grade of 'A' is equivalent to 4.00 *grade* points; A- earns 3.67 *grade* points; and so forth until reaching 'F', which earns zero points. Students' academic performance in any class is determined by multiplying the earned *grade* points by the number of credits. Results of that calculation are referred to as *quality* points (e.g., 'A' earned in a 3 credit class = 12 *quality* points). Students' GPA is calculated by multiplying the number of academic credits for each course taken in a term by the grade points corresponding to the grades earned. The total number of grade points is divided by the total number of credits to determine the GPA.

To measure academic performance in this study, GPA at graduation as well as quality points earned in majors' classes were extracted from interns' official transcript. In that GPA incorporates coursework outside students' majors, it provides a useful contrast to students' performance in their health education major. University policy requires that all students complete their final 30 credits at our institution. As a consequence, transfer credits typically reflect lower level coursework; a student's last 30 credits instead focus on upper level coursework in students' major.

### Instrument

As part of their agreement to host an intern, each preceptor agrees to complete the same 53-item evaluation at the middle and end of the internship. Validity of the tool was established by a panel of five experts (practitioners and academicians) who deemed it consistent with appropriate measurement of the intended goals and appropriate in content, readability, etc. for intended respondents. Cronbach's alpha (alpha=.85,  $p<.05$ ) established that items purported to measure the same construct indeed succeeded in doing so. Average inter-item correlations ranged from .83-.96 ( $p<.05$ ).

Included on the form are questions pertaining to the intern's personal qualities; professional and organizational abilities; communication and teaching skills; and other attributes. Items are scored on a Likert scale ranging from '1' to '5' where '1' reflects seriously deficient for an entry-level health educator and '5', that the student is 'highly advanced' on the specific attribute. In addition, preceptors provide an overall assessment of the student's performance, again ranging from 1-5 (with '5' as most favorable). For purposes of these analyses, two items were selected as indicators of each NCHEC Area of Responsibility (Table 1). These 14 individual indicators were reviewed for content validity, and endorsed as such by a panel of health educators. In fall 2011, the long-standing preceptor evaluation tool was enlarged to include seven new items, each addressing the seven NCHEC Areas of Responsibility. Given the recency of their addition, preceptor responses to the seven NCHEC Areas of Responsibility comprise a smaller sample (N=70) than for the individual NCHEC indicators (N=221). All other data derive from preceptor assessments for the period 2008 through 2014.

### Sample

Undergraduate majors in our program complete 14 required classes. Courses reported here are those majors' requirements which, based on a review of other curricula, are most likely to exist across undergraduate preparation programs. These classes (Tables 2a and 2b) provide a breadth of coverage not only in terms of content, but also class level (200-level, 300-level, etc.).

The sample includes preceptors' assessments of 221 interns. Of those students, 75% completed a full semester internship. The remaining 25% were dual majors, participating in a one-half semester community health internship and a one-half semester student teaching experience. Seventy-one percent of all interns transferred to our program from a different educational instruction.

Among students for whom data are reported, 20% interned in nongovernmental organizations; 22% worked in hospital outreach; and 23% were placed in other hospital units (e.g., cardiac rehabilitation, patient relations). Fourteen percent of students interned with government offices, 10% in colleges or universities, with the remaining 10% placed in other settings (e.g., for-

profit fitness centers). Approved by the appropriate institutional body for protection of human subjects, the study was deemed consistent with curricular assessment and posed no harm to participants. Consistent with the study's goals, the design enabled consideration of student and preceptor performance over time rather than reflecting a single or specific student cohort, group of preceptors, or faculty responsible for assessing student performance in the classroom.

## RESULTS

The mean GPA for the sample was 3.23 (4.0 = maximum). Students' mean performance in the six majors' courses ranged from B to A-. The 200-level course had the highest mean quality points (11.72) compared to other required courses. Across all six courses, students were more likely to earn A's (22 - 90%) than C's (0.5% - 6%).

At midterm, all 14 individual indicators earned mean scores of at least 3.74 (Table 1). Three indicators (*Establish priorities for completion of responsibilities; Respond appropriately to questions from clients and students; and Demonstrate culture, gender, and racial sensitivity*) exceeded '4' at midterm. By the internship's conclusion, only *Demonstrate grant writing skills* had a mean lower than '4'; all other individual indicators scored 4.16 and above. Regardless of the individual indicator, all means improved from midterm to final. Preceptors' overall evaluation of interns' performance likewise increased from midterm (3.67) to final (4.42) assessment.

Consistent with individual indicators, each of the seven NCHEC Areas of Responsibility improved over time (Table 3). At midterm, means ranged from 3.69 (*Serve as a health education resource person*) to 3.89 (*Assess needs, assets, and capacity for health education*). By the final assessment, all seven NCHEC Areas of Responsibility improved, with means ranging from 4.07 (*Administer and manage health education*) to 4.23 (*Implement health education and Communicate and advocate for health and health education*).

Based on a paired-samples t-test, the increase in mean scores for all but one (*Demonstrate grant writing skills*) of the 14 individual indicators was statistically significant

( $p < .001$ ) (Table 1). Final assessment means also were significantly different and exceeded those at midterm for each NCHEC Area of Responsibility (Table 3).

As shown in Table 2, most relationships between 200-level performance and individual indicators were not statistically significant. 300-level performance yielded more outcomes that were significant relative to the 200-level. With the exception of three indicators (*Use effective and appropriate strategies to meet objectives, Demonstrate grant writing skills, and Respond appropriately to questions from clients and students*), the stronger students' performance in Curriculum & Planning, the more successfully they were evaluated. Of those 11 noteworthy pairs, 10 related significantly to Curriculum & Planning at midterm; of that group, six indicators also were significantly correlated with Curriculum & Planning in preceptors' final evaluations. One indicator, *Demonstrate promotional and publicity skills*, was significantly related to Curriculum & Planning in only the final preceptor evaluation ( $r = .165, p < .05$ ). The strength of this 300-level class emerged as well relative to 400-level coursework. 400-level class performance correlated significantly with eight indicators, the majority of which related only to interns' midterm assessments.

GPA at midterm and/or final assessment was significantly related to all but four of the 14 individual indicators (*Use knowledge of learning styles; Demonstrate grant writing skills; Respond appropriately to questions from clients and students; Demonstrate culture, gender, and racial sensitivity*). GPA related significantly to both midterm and final preceptor assessments for six of those 10 indicators. Consistent with the performance of individual courses, GPA was more likely to correlate with preceptors' midterm assessments. In all cases, higher GPA aligned with more favorable assessments of students' fieldwork performance.

If one examines Table 2 in terms of individual indicators, the ability to establish priorities linked most often to stronger academic performance in both midterm and final assessments (eight significant associations, with values ranging from  $r = .119$  to  $r = .169$ ). Students' ability to develop goals and objectives and to develop and select appropriate evaluation plans, at both midterm and final, performed nearly identically with the next most frequent array of significant

associations (seven significant associations, with values ranging from  $r = .118$  to  $r = .246$ ). The remaining indicators (Table 2) had relatively few significant relationships with course-specific academic performance. Where course-specific relationships existed, they occurred most often with assessments of interns' midterm performance.

The majority (118 of 168) of relationships with course-specific performance and individual indicators were not significant. GPA, in contrast, significantly correlated with the majority of individual indicators (values ranging from  $r = .113$  to  $r = .253$ ). Of the 16 significant relationships between GPA and individual indicators, the majority ( $n = 9$ ) entailed preceptors' midterm assessments. Preceptors' overall assessments of their interns, whether at midterm or final, were largely unrelated to academic performance.

As shown in Table 4, four NCHEC Areas of Responsibility related significantly to academic performance in at least one course or GPA. Preceptors' final assessment of students' in terms of *Implement health education* and *Serve as a health education resource person* linked significantly to 400-level coursework. While a frequent correlate of interns' performance across individual indicators, Curriculum & Planning related to a single NCHEC Area of Responsibility, *Implement health education*. GPA was significantly related to a single NCHEC Area of Responsibility, *Assess needs, assets, and capacity for health education*.

## CONCLUSIONS

It is easy and not inappropriate to be pleased with the overall high levels at which interns were evaluated by their preceptors. Once undergraduates have found their *academic home*, they are more likely to excel. Other interpretations, however, must be acknowledged to fairly and fully consider these findings.

Sites differed in their ability to provide health education experiences. When unclear about what constituted a specific attribute, preceptors may have scored inconsistently. Some preceptors may have assessed students as relatively lower performing given students' lack of exposure, while others considered the same quality as 'not applicable' or assigned values based on students' anticipated performance. Alternatively, some preceptors may have

awarded inappropriately high scores, concerned that lower assessments signaled lower performing internship sites. Another potential confounder is that students may choose internship sites where they anticipate success. That preceptors evaluated students with consistently high and less-dispersed scores could reflect the accuracy of students' anticipated fit rather than their preparation.

Students' GPA was a less impressive indicator than their performance across their major's courses. Given the proportion of transfer students in the program, GPA may have been impacted by grades earned at their prior institution. Another explanation, however, is that students had to repeat their lower performing major's courses until the necessary 'C' was obtained. GPA, in contrast, could have included less successful coursework which did not need to be repeated for a higher grade.

With the exception of students' grant writing skills, significant differences existed between all paired (i.e., midterm and final) indicators of interns' functioning. This improved performance may be attributable to having more time for preceptors to observe students' growth, and for students to accrue experience. Grant writing's singular performance may reflect preceptors' belief that grant writing responsibilities are too important to delegate to the still unexperienced intern.

In terms of NCHEC Areas of Responsibility, preceptors' final assessments also were more favorable than their midterm perspectives. Students' weakest NCHEC Area of Responsibility at midterm, *Serve as a health education resource person*, experienced the largest overall gain by the time of preceptors' final assessment. Since this NCHEC Area of Responsibility requires sufficient knowledge of a site for the student to be an effective resource, its degree of improvement is not surprising. The ability to implement health education and to become more effective when required to communicate and advocate for health and health education similarly entail time to unfold; their respective improvements in final assessments likewise are not unexpected. Our ability to provide fuller consideration of NCHEC Areas of Responsibility is limited by the extent to which older forms (i.e., amended in 2011 to include NCHEC Areas of Responsibility) continued to be in use.

Observed correlations between coursework and individual indicators were consistent with expectations: the stronger students' academic performance, the better they performed as interns. The number of significant relationships between courses and individual indicators at midterm exceeded those at the final evaluation. Given this pattern of association, coursework appeared to prepare students for their initial internship responsibilities. By the internship's conclusion, however, coursework was less likely to link with on-the-job success, suggesting the value-added impact of internship relative to coursework.

Faculty would like to think students' internship performance is driven by their formal preparation. These data may offer an alternative explanation. Rather than coursework's improving internship performance, it may be that students with certain intrinsic abilities performed better in *both* coursework and internship. To illustrate, students' ability to develop goals and objectives was a significant correlate of performance in Health Care in the US. Students do not learn how to develop goals in this course. Instead, students already able to develop goals and objectives may have applied that asset to earn higher grades. Similar explanation may apply to the preponderance of significant relationships regarding students' ability to establish priorities and to read and interpret research information. Proficiency in those skills enable classroom success; that same proficiency, applied during internship, could have contributed to preceptors' favorable ratings of students' performance.

Of all courses, Curriculum & Planning related most to performance. As the first upper-level course among required majors' classes, Curriculum & Planning introduces topics including instructional methods, implementation of health education programs, as well as measurement and evaluation techniques. Each 400-level course is (relative to Curriculum & Planning) less global in focus, providing more in-depth exploration of those topics previously introduced. Given this purposeful curriculum sequencing, it is logical that Curriculum & Planning assumed such prominence. Despite their relationship to students' 300-level foundation, however, 400-level courses correlated with only eight individual indicators. It appears that the explicit focus provided at the 400-level, relative to the more basic 300-level

treatment, was not comparable to the more general scope of performance required by entry-level health educators.

That higher GPAs correlated with higher ratings on the individual indicators was expected. While GPA correlated with individual indicators at both midterm and final, the strength of those associations by internships' conclusion decreased (with one exception, *Establish priorities for completion of responsibilities*). This trend raises the question of whether overall academic success, though related to performance, was less pertinent for internship success over time.

Shifting attention to broader markers, there were relatively few significant correlations between NCHEC Areas of Responsibility and students' performance in specific courses. These findings may have been impacted by the smaller sample size or preceptors' unfamiliarity with the newer items' intent.

Mirroring curricular treatment of individual indicators, 200- and 300-level courses are completed earlier in the major, introducing NCHEC Areas of Responsibility to students. In 400-level courses, students apply NCHEC Areas of Responsibility throughout their course assignments. The 400-level courses also immediately precede internship, thus being more recent additions to students' knowledge base. That 200- and 300-level courses were less likely to correlate with NCHEC Areas of Responsibility, when compared to the 400-level courses, may reflect the impact of curricular sequencing.

Only one significant relationship existed between GPA and NCHEC Areas of Responsibility. Perhaps coursework outside the major does not contribute to students' success in those areas. What our data cannot untangle, however, is whether those same non-majors' courses provide useful exposure and experience in critical thinking, writing, etc. that contribute in less overtly-measured ways to students' performance throughout internship.

Additional concerns must be acknowledged in reviewing these findings. Multiple faculty instructed some of the courses. While instructors work from shared syllabi for a given class, distinctions in expectations, grading, etc. may explain some findings. Nor are all indicators

uniformly available across sites (e.g., *Demonstrate grant writing skills*), which complicates the ability to determine student proficiency in those less frequently encountered areas. That all preceptors regard the indicators in the same way likewise is not clear. The majority of preceptors are not CHES-credentialed. Also reflective of the real world, many sites do not engage in assessments as reported here. Preceptors' unfamiliarity with quantitative evaluation thus may have impacted findings.

## RECOMMENDATIONS

Faculty make difficult decisions in terms of how to 'spend' valuable classroom time. A well-rounded curriculum helps ensure students are prepared for a variety of fields and experiences following graduation. Certain content may be relevant to the foundation of a qualified health educator but have no direct or explicit link to NCHEC Areas of Responsibility. Also true is that not all NCHEC Areas of Responsibility may relate to academic success. For example, while interpersonal skills are important for success as an advocate, faculty may be able to address them only indirectly in the classroom. The more programs enhance students' appreciation of those non-academic qualities (e.g., sensitivity to diversity), the better prepared students will be for their professional careers. Internship also represents a shift from classroom-based to workplace expectations. As internships unfold, students become better equipped to anticipate a site's needs and usual activities, not unlike expectations of them in future employment. Students unable to transition from supervisor-direction to self-direction may be less successful as internship progresses.

Our findings also remind us that grades matter -- but that they matter differently in different contexts. While perhaps instrumental to students' ability to continue their formal education, a strong GPA is not necessarily linked to students' performance in the real world. As faculty struggle to grade students fairly, we need to bear in mind the ways in which grades are used to confirm that students -- and future employers -- receive appropriate and productive assessments. In that context, arriving at meaningful ways to grade internships merits our continued attention. It is incumbent on faculty to work with our real world partners to assure that feedback regarding interns' performance has

value to students, their professional preparation programs as well as their on-site preceptors.

Curricular planning entails consideration of when to introduce, reinforce and establish mastery of student competencies. The place of internship in that academic lifecycle requires constant attention. As these data underline, it may be that academic preparation is most useful to students' professional launch. Internships build on that course foundation and extend students' growth beyond what happens in the formal classroom setting. To better direct future planning, undergraduate preparatory programs would be well-advised to work with our practitioner colleagues to confirm their understanding of the NCHEC Areas of Responsibility and how we, as program faculty, use their student assessments to inform curricula.

An array of factors may have influenced these data. The analyses nonetheless offer productive insight into issues pertinent to professional preparation programs. Continuous exploration of our curricula is required. We must never stop asking: Are we providing students with a foundation to maximize their success as entry-level health educators? Is the classroom preparing them for a successful real world launch, with internship providing value-added development to students' preparation? Grades matter to the professional preparation of undergraduates. Our job as faculty is to make sure that our grading as well as our classes continue to matter in preparing students for life in the real world.

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**Table 1: Individual Indicators of NCHEC Areas of Responsibility: Midterm and Final Assessment**

\*\* p < .001

NCHEC Area of Responsibility	Individual Indicator	Mean		t
		Mid	Final	
Assess needs, assets, and capacity for health education	Access, use, evaluate reliable health resources	3.96	4.32	6.875**
	Use knowledge of learning styles	3.84	4.22	6.368**
Plan health education	Develop goals and objectives prior to beginning project	3.88	4.22	6.735**
	Establish priorities for completion of responsibilities	4.07	4.33	5.707**
Implement health education	Demonstrate teaching skills	3.87	4.27	7.214**
	Use effective and appropriate strategies to meet objectives	3.94	4.26	6.736**
Conduct evaluation and research related to health education	Read and interpret research information	3.97	4.25	5.429**
	Develop and select appropriate evaluation plans	3.85	4.17	4.254**
Administer and manage health education	Demonstrate grant writing skills	3.74	3.95	1.714
	Participate effectively in groups as a leader	3.83	4.16	4.769**
Serve as health education resource person	Know how and where to refer clients	3.82	4.20	7.132**
	Respond appropriately to questions from clients and students	4.08	4.39	6.818**
Communicate and advocate for health and health education	Demonstrate promotional and publicity skills	3.79	4.23	8.061**
	Demonstrate culture, gender, and racial sensitivity	4.14	4.42	4.748**
	<b>Overall evaluation</b>	<b>3.67</b>	<b>4.42</b>	<b>4.409**</b>

**Table 2a: Relationship (Pearson r) between Individual Indicators (Midterm & Final) and Students' Academic Achievement, by Class and GPA**

\* p < .10; \*\*p < .05

Level	Course	Access, use, evaluate reliable health resources		Use knowledge of learning styles		Develop goals and objectives prior to beginning project		Establish priorities for completion of responsibilities		Demonstrate teaching skills		Use effective and appropriate strategies to meet objectives		Read and interpret research information	
		Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final
200	Health Care in US	NS	NS	.171*	NS	.126*	NS	NS	NS	NS	NS	.145**	NS	.174**	NS
	Foundations of Health Education & Behavior	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
300	Curriculum & Planning	.261**	NS	.129*	.167*	.158*	.121*	.150**	.169**	.242**	NS	NS	NS	.273**	.134*
400	Instructional Methods	NS	NS	NS	NS	.118*	.122*	.160**	.133**	NS	NS	.135**	.157*	.176**	NS
	Organization, Implementation & Management	NS	NS	NS	.132*	.157*	NS	.125*	.119*	NS	NS	.162**	NS	.132*	NS
	Measurement & Evaluation	NS	NS	NS	NS	.128*	NS	.140**	.163**	NS	NS	NS	NS	.155*	NS
	GPA	.196**	.113*	NS	NS	.196*	.144*	.178**	.191**	.154*	NS	.206**	.140*	.243**	NS

**Table 2b: Relationship (Pearson r) between Individual Indicators (Midterm & Final) and Students' Academic Achievement, by Class and GPA**

\* p < .10; \*\*p < .05

Level	Course	Develop and select appropriate evaluation plans		Demonstrate grant writing skills		Participate effectively in groups as a leader		Know how and where to refer clients		Respond to questions from clients and students		Demonstrate promotional and publicity skills		Demonstrate culture, gender, and racial sensitivity		Overall Evaluation	
		Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final
200	Health Care in US	.246*	.149*	.394*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Foundations of Health Education & Behavior	NS	NS	NS	NS	NS	NS	NS	.126*	NS	NS	NS	.128*	NS	NS	.136**	NS
300	Curriculum & Planning	.184**	.200**	NS	NS	.226*	.156**	.120*	NS	NS	NS	NS	.165**	.230**	NS	NS	NS
400	Instructional Methods	.186**	NS	NS	NS	NS	.127*	NS	NS	NS	NS	NS	.129*	NS	NS	NS	NS
	Organization, Implementation & Management	.196**	.192**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Measurement & Evaluation	NS	NS	NS	NS	.148*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	GPA	.253**	.158*	NS	NS	.230**	.158**	.133*	NS	NS	NS	NS	.168**	NS	NS	.114*	NS

**Table 3: NCHEC Areas of Responsibility: Midterm and Final Assessment**

\*p < .05; \*\*p < .001

NCHEC Area of Responsibility	Mean		t
	Mid	Final	
Assess needs, assets, and capacity for health education	3.89	4.13	2.436*
Plan health education	3.75	4.13	4.152**
Implement health education	3.80	4.23	4.494**
Conduct evaluation and research related to health education	3.88	4.14	2.211*
Administer and manage health education	3.74	4.07	2.641*
Serve as a health education resource person	3.69	4.19	5.025**
Communicate and advocate for health and health education	3.85	4.23	3.277*

**Table 4: Relationship (Pearson r) between Assessments of NCHEC Areas of Responsibility (Midterm & Final) and Students' Academic Achievement, by Class and GPA**  
\*p < .10; \*\*p < .05

Level	Course	Assesses needs, assets, and capacity for health education		Plan health education		Implement health education		Conduct evaluation and research related to health education		Administer and manage health education		Serve as health education resource person		Communicate and advocate for health and health education	
		Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final	Mid	Final
200	Health Care in US	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Foundations of Health Education & Behavior	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
300	Curriculum & Planning	NS	NS	NS	NS	.202*	NS	NS	NS	NS	NS	NS	NS	NS	NS
400	Instructional Methods in Health Education	NS	NS	NS	.206*	NS	.229*	NS	NS	NS	NS	NS	NS	NS	NS
	Organization, Implementation & Management of Health Education Programs	NS	NS	NS	.198*	NS	NS	NS	NS	NS	NS	NS	.197*	NS	NS
	Measurement & Evaluation in Health Education	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	GPA	NS	.213*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS