

# Chapter 12

## Integration of Civic Engagement Pedagogies in the STEM Disciplines

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### EXECUTIVE SUMMARY

*This chapter discusses the development and implementation of an interdisciplinary learning community between the departments of Dental Hygiene and Biological Sciences, correlating nutrition with oral health and oral cancer and its prevention by early screening. The goal of the project was to engage underrepresented, urban undergraduate students in civic learning, with an eye toward expanding learning capacities and civic responsibilities beyond the classroom. The project followed participation in the 2010 Summer Institute offered by the National Science Foundation's Science Education for New Civic Engagements and Responsibilities (SENCER). Oral and Maxillofacial Pathology integrates basic science curriculum and applies this unified foundation knowledge to the clinical evaluation of disease, thereby closing the gap between didactic and applied material. Dental Hygiene students enrolled in Nutrition and Anatomy and Physiology will learn to connect this knowledge gained with practical application outside the natural sciences, which in turn will make these courses more interesting and relevant.*

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## **ORGANIZATION BACKGROUND**

New York City College of Technology (City Tech) is the largest public college of technology in New York State. It is a federally designated Minority Serving Institution/Hispanic-Serving Institution located in Downtown Brooklyn, and according to U.S. News and World Report, City Tech is ranked first as the campus with the most ethnic diversity in their Regional Colleges North (<http://colleges.usnews.rankingsandreviews.com/best-colleges/rankings/regional-colleges-north/campus-ethnic-diversity#>). As of Fall 2011, City Tech serves a 15,963-member student body (33.2% Hispanic, 32.5% Black, 19.2% Asian/Pacific Islander, 11.2% non-Hispanic White, 0.5% Native American, 3.4% Other). Forty percent (40%) of students were born outside the United States; 61.6% speak a language other than English at home. Fifty-six percent (56%) report yearly household incomes of less than \$30,000 and 76.8% of incoming freshman receive need-based financial aid (2011-2012).

## **SETTING THE STAGE**

The Dental Hygiene program at New York City College of Technology had its first graduating class in 1949. Since that time, the scope of practice as well as the face of the profession has changed dramatically. Dental hygienists are a fundamental part of the oral health care team and the current curriculum as well as licensing criteria reflects this transformation. Dental Hygiene students graduate with an Associate in Applied Science Degree and provide educational, clinical, and therapeutic services to the public on site at City Tech in the Dental Hygiene Clinic.

Students in the health fields are in a hurry to get through the general education and basic science prerequisite and co-requisite classes required by the majors and they often find these classes boring, frustrating, and ultimately unnecessary. Currently students rush through them, giving their content little importance, so they can get on to the discipline specific programs they came to the college to study. They do not see the necessity of general education; specifically the roles prerequisite and co-requisite curricula play in their dental hygiene education.

The knowledge gained through the general education and basic science curriculum is viewed as ‘other’ or separate from knowledge gained in the major. Therefore, it has inherently less value or worth to the student. The result of which is a disconnection between knowledge derived from English, Mathematics Biology and Sociology, pre-requisites for admission to the Dental Hygiene program, and the knowledge gained within the discipline. This separation results in a dichotomy for the students, they need good grades in these courses to be admitted to the program but they do not see how the didactic material learned in the pre and co-requisite courses can affect their progress in the Dental Hygiene major.

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