

Input.—The faculty of the chemistry department have provided the computer with the following data:

1. Chemistry 101 requires 3 periods (hours) of lecture each week with a maximum of 750 students and a minimum of 250 in a section.
2. One period (hour) each week is assigned as a "quiz" period with a maximum of 25 and a minimum of 15 students in a section.
3. The laboratory requirements for Chemistry 101 are 6 periods (6 hours) with either 2-3 hour periods or 3-2 hour periods of a maximum of 60 and a minimum of 40 students per section.

Output.—The computer provides the information that 1,000 students will be scheduled into 2 lecture sections, 50 quiz sections, and 20 laboratory sections.

Input.—The administration provides the policy for staffing the course as follows:

1. The lecture portion will be taught by an Associate Professor as a full load.
2. The quiz sections will be administered by teaching assistants. Each teaching assistant will handle 10 quiz sections as one-half load.
3. The laboratory sections will be supervised by instructors with the assistance of graduate students acting as laboratory assistants. The instructors handle 10 sections as a full load and the laboratory assistants handle 4 sections as one-half load.

Output.—The computer states a need for one full-time equivalent associate professor, $2\frac{1}{2}$ FTE laboratory assistants, $2\frac{1}{2}$ full-time equivalent teaching assistants and 2 FTE instructors.

Input.—The administration has developed, with the cooperation of the faculty, the following space standards and space modules:

1. Lecture halls of more than 300 students will be planned at 12 assignable square feet per station and assigned a minimum of 30 hours per week.
2. Freshmen Chemistry laboratories will be planned at 40 assignable square feet per student station (including service areas) and will be assigned a minimum of 40 hours per week.
3. Small classrooms will be used for quiz sections. A classroom of 25 student stations will be planned at 16 sq. ft./ss and will be assigned a minimum of 36 hours per week.
4. Faculty will be assigned individual offices allowing 140 assignable sq. ft. Chemistry faculty will also be allowed 300 assignable sq. ft. for research purposes.
5. Teaching assistants will be allowed 120 assignable sq. ft. per FTE for office space and provided no research space.
6. Instructors (not classified as faculty) will be allowed 200 assignable sq. ft. for office and research purposes per FTE.
7. Laboratory assistants are not provided with office space. They do develop space for research purposes as graduate students.
8. Library space is developed through an allowance of assignable sq. ft. per student clock hour.
9. Administrative space is computed as 10 percent of the total space required.

Output.—The computer shows the following needs expressed in assignable square feet:

	<i>Square feet</i>
$\frac{1}{2}$ lecture hall for 600, at 12 sq. ft./ss.....	1,440
3 Chemistry labs for 60, at 40 sq. ft./ss.....	7,200
1.4 Classrooms for 25, at 16 sq. ft./ss.....	560
1 Faculty office, at 140 sq. ft.....	140
1 Faculty Research space, at 300 sq. ft.....	300
$2\frac{1}{2}$ Teaching assistants office, at 120 sq. ft.....	300
2 Instructors office and research space, at 200 sq. ft.....	400
Laboratory assistants offices.....	
Library space, at sq. ft. per clock hr.....	10,000
Subtotal	20,340
Administrative space, 10 percent.....	2,034
Total	22,374

22,374 assignable sq. ft. times 1.67 equals 37,365 gross sq. ft.

37,365 gross sq. ft. times \$30 sq. ft. project cost equals \$1,120,950 or \$1,120 per student enrolled in Chemistry 101.