

CURRICULUM VITAE

Name: James Elwood Zull

Education:

1961 B.A. in Chemistry (Zoology and German minors), Houghton College, Houghton, N.Y.
1963 M.S. in Biochemistry, University of Wisconsin, Madison
1966 Ph.D. in Biochemistry (Chemistry Minor), University of Wisconsin, Madison
1965-66 Postdoctoral Fellow, Dept. of Biochemistry, University of Wisconsin, Madison

Academic Positions and Experience:

1966-68 Assistant Professor of Chemistry Case Institute of Technology
1968-72 Assistant Professor of Biology & Biochemistry, Case Western Reserve University
1972-77 Associate Professor of Biology & Biochemistry, Case Western Reserve University
1974-75 Visiting Professor of Biochemistry, Institute for Pathophysiology University of Bern, Bern, Switzerland
1976- Visiting Consultant in Biochemistry, Dept. of Pharmacology, Biomedicum, Upsalla, Sweden
1977- Professor of Biology & Biochemistry, Case Western Reserve University

Member of: AAAS, American Society of Biological Chemists, American Society for Bone and Mineral Research, Protein Society

Editorial Board: J. Receptor Research (1980-1990)

Honors and Awards:

- 1964 Graduate School, Babcock Fellowship in Biochemistry (University of Wisconsin)
- 1971-76 NIH, Research Career Development Awardee
- 1975 INSERM, Visiting Lectureship in France (Hopital Tenon, Division of Biochemistry, SACLAY, Department of Cell Physiology - College deFrance and Hopital St. Antoine) Paris, France, April.
- 1980 Travel Award to International Congress onBiochemistry (Amsterdam)

Research Interests: Cell Biology and biochemistry of calcium regulating hormones; Biochemistry of hormone receptors; Chemistry and conformation of Parathyroid Hormone; Metabolism of peptide hormones; ATP regulation of lysosomal proteolysis; Evolution of protein structure; Attachment of proteins to self-assembled monolayers; Biosensors and Immunosensors; Human Learning Theory; Brain Imaging and Learning.

PUBLICATIONS:

Publications summary: 105 total publications including 60 refereed papers and book chapters, and 45 abstracts of presentations at national meetings.

Publication list: The list includes papers and chapters, but abstracts are omitted. All abstracts are of papers presented in oral or poster sessions at meetings of professional societies (American Chemical Society; American Society of Biological Chemists; American Society of Bone and Mineral Research; Biophysical Society; International Congress of Biochemistry; International Congress of Endocrinology, Am. Materials Society, Am. Soc. of Microbiology, Canadian Soc. of Microbiology). They are published, but are not refereed.

1. Zull, J. E., Czarnowski-Misztal, E., and DeLuca, H. F., 1965, Actinomycin D Inhibition of the Action of Vitamin D, *Science*, 149, 81-82.
2. Zull, J. E., Misztal, C., and Deluca, H. F. (1966) Response to Vitamin D in Adrenalectomized Animals, *Nature*, 210, 96-97.

3. Zull, J. E., Czarnowski-Misztal, E., and DeLuca, H. F., 1966. On the Relationship between Vitamin D Action and Actinomycin Sensitive Processes. *Proc. Nat. Acad. Sci.* 55, 177-182.
4. Stohs, S. R., Zull, J. E., and DeLuca, H. F., 1966. Vitamin D Stimulation of H³-Orotic Acid Incorporation into Intestinal RNA, *Biochemistry*, 6, 1304-1310.
5. Zull, J. E., Grenoff, S., and Adam, H. F., 1968. Infrared Measurements of the Interaction of Egg Lecithin within Cholesterol in the Solid State. *Biochemistry* 7, 4172-4176.
6. Sweet, C. and Zull, J. E., 1969. Activation of Glucose Diffusion from Egg Lecithin Liquid Crystals by Serum Albumin. *Biochem. & Biophys. Acta.* 173, 94-98.
7. Poincelot, R. and Zull, J. E., 1969. Phospholipid Extractability of Light and Dark-Adapted Bovine Retinal Rod Outer Segments. *Vision Research* 9, 647-655.
8. Zull, J. E. and Sciotto, C., 1969. Infrared Measurements of Hydrogen Bonding of Vitamin D in the Solid State, *Biochem. & Biophys. Acta* 173, 409-416.
9. Zull, J. E. and Hopfinger, A. J., 1969. The Potential Energy Fields About Choline and Ethanolamine Nitrogen: Effect on Ion Binding by Membranes. *Science* 165, 3892-3893.
10. Adam, A. K. and Zull, J. E., 1970. Transfer of Calcium Through a Lipid Bilayer. *Journal of Interface and Colloid Sciences* 34, 272-279.
11. Sweet, C. and Zull, J. E., 1970. A Reconstituted Lipo-Protein Model Membrane from Liposomes and the Erythrocyte Membrane Protein, Spectrin. *Biochem. and Biophys. Res. Comm.* 41, 135-139.
12. Sood, C. K., Sweet, C., and Zull, J. E., 1972. Interaction of Kidney Na⁺ - K⁺-ATPase with Phospholipid Model Membrane Systems. *Biochimica et Biophysica Acta* 282, 429-433.
13. Zull, J. E. and Repke, D. W., 1972. Studies with Tritiated Polypeptide Hormones, I. The Preparation and Properties of an Active, Highly Tritiated Derivative of Parathyroid Hormone: Acetaminidino-Parathyroid Hormone. *J. Biol. Chem.* 247, 2183-2188.
14. Zull, J. E. and Repke, D. W., 1972. Studies with Tritiated Polypeptide Hormones, II. Biological and Chemical Properties of Tritiated Acetaminidino Insulin. *J. Biol. Chem.* 247, 2189-2197.
15. Zull, J. E. and Repke, D. W., 1972. The Tissue Localization of Tritiated Parathyroid Hormone in Thyroparathyroidectomized Rats. *J. Biol. Chem.* 247, 2195-2199.

16. Malbon, C. and Zull, J. E., 1974. Specific Binding of Parathyroid Hormone to Isolated Plasma Membranes from Rat Kidney Cortex. *Biochem. and Biophys. Res. Comm.* 56, 952-957.
17. Wong, N. O. and Zull, J. E., 1974. Structural Studies of a Mitochondria-Free Plasma Membrane Fraction from Rat Liver. *Biochem. et Biophys. Acta.* 352, 62-69.
18. Zull, J. E., Shriver, J., and Chuang, J., 1975. Direct Studies of the Interaction of Tritiated PTH with the Rat Kidney in vivo, in Vitamin D and Problems Related to Uremic bone Disease. Proceedings of the 2nd Vitamin D Workshop, Wiesbaden, Germany, October, 1974, Walter de Gruyter, Berlin, N.Y. 431-439.
19. Sogor, B. V. D. and Zull, J. E., 1975. Further Studies on the BSA-Liposome Complex as a Model Lipoprotein Membrane, *Biochem. et Biophys. Acta* 375, 363-373.
20. Zull, J. E., Malbon, C., Chuang, J., Das, M. M., and Stumpf, W., 1975. Preparation and Properties of a Tritiated Derivative of Parathyroid Hormone and its Utilization for the Study of Renal PTH Receptors, in *Calcium Regulating Hormones*. (Talmadge, Owen Parsons Eds.) Excerpta Medica Amsterdam, pp. 180-184.
21. Zull, J. E. and Chuang, J., 1975. Further Studies of Acetamidation as a Technique for Preparation of a Biologically Valid Tracer for Parathyroid Hormone. *J.B.C.* 250, 1668-1675.
22. Canterbury, J. M., Bricker, L. A., Levey, G. S., Kozlovskis, P. L., Ruiz, E., Zull, J. E., and Reiss, E., 1975. Metabolism of Bovine Parathyroid Hormone, Immunological and Biological Characteristics of Fragments Generated by Liver Perfusion. *J. Clin. Invest.* 55, 1245-1253.
23. Malbon, C. and Zull, J. E., 1975. Solubilization of a Parathyroid Hormone Receptor from Bovine Kidney Cortex Membranes. *Biochem. Biophys. Res. Comm.* 66, 199-205.
24. Zull, J. E. and Malbon, C., 1976. Parathyroid Hormone Receptors, in *Methods in Molecular Biology - Methods in Receptor Research*. Bletcher, M., Ed., Chapt. 17, pp. 533-564, Marcel Dekker, Incor., N.Y.
25. Zull, J. E. and Malbon, C., 1976. Studies of Soluble Receptors for Parathyroid Hormone obtained from Bovine Kidney Cortex Plasma Membranes. Proceedings of Second International Workshop on Calcified Tissues, Kiriat Anavin, Israel. March, 1976.

26. Zull, J. E., Malbon, C., and Chuang, J., 1977. Binding of Tritiated Parathyroid Hormone to Plasma Membranes from Bovine Kidney Cortex. *J. Biol. Chem.* 252, 1071-1078.
27. Malbon, C. and Zull, J. E., 1977. Studies of Binding Parathyroid Hormone to a Detergent-dispersed Preparation from Bovine Kidney Cortex Plasma Membranes. *J. Biol. Chem.* 252, 1079-1083.
28. Zull, J. E., Krug, S., Abel, O., and Caplan, A. I., 1979. Development of Parathyroid Hormone Responsive Cells in Cultures of Undifferentiated Chick Limb Bud Cells. *Proc. Nat. Acad. Sci.* 75, 3811-3865.
29. Heath, E. and Zull, J. E., 1980. Metabolism of Tritiated Parathyroid Hormone by a Bovine Kidney Plasma Membrane Preparation. *J. Biol. Chem.* 255, 1577-1585.
30. Zull, J. E. and Lev, Naomi, 1980. A Theoretical Study of the Structure of Parathyroid Hormone. *Proc. Nat. Acad. Sci.* 71, 3791.
31. Zull, J. E. and Chuang, J., 1980. Kidney Membrane Binding of Native PTH Compared to Binding of its Synthetic 1-34 Fragment. *J. Recep. Research* 1, 69-75.
32. Heath, E. and Zull, J. E., 1980. Activation of Kidney Membrane Adenylyl Cyclase by Low Concentration of Parathyroid Hormone. *Endocrine Research Communications* 7(2) 87-93.
33. Zull, J. E., Youngman, K., and Caplan, A. I., 1981. The Development of Hormonal Response in Cultured Embryonic Chick Limb Mesenchymal Cells. *Dev. Biol.* 86, 61-68.
34. Botti, R. E. and Zull, J. E., 1983. Identification of an ATP-Activated Endopeptidase from Rat Kidney which Catalyzes Cleavage of PTH to Fragments Identical to Those Produced in the Rat Kidney in vivo. *Endocrinology*, 112, 393-396.
35. Pillai, S., Botti, R. E., and Zull, J. E., 1983. ATP Activation of Parathyroid Hormone Cleavage by Cathepsin D. *J. Biol. Chem.*, 258, 9724.
36. Frelinger, L. and Zull, J. E., 1984. Oxidized Forms of Parathyroid Hormone with Biological Activity. *J. Biol. Chem.* 260, 8384-8389.
37. Zull, J. E. and Chuang, J., 1984. Preparation and Characterization of Radioactive Monoiodotyrosine and Diiodotyrosine Derivatives of Parathyroid Hormone. *Anal. Biochem.* 140, 214-222.
38. Pillai, S. and Zull, J. E., 1985. ATP Activation of Proteolysis in Subpopulations at Kidney Lysosomes, *Biochem. Biophys. Acta.*, 843, 92-100.

39. Pitts, T. O., Puschett, J., Rose, M. E., and Zull, J. E., 1986. Phosphaturia Following PTH Infusion without Adenylyl Cyclase Activation, *Kidney Int.*, 28, 169.
40. Zull, J. E., Chuang, J., and Yike, I., 1987. Interaction of PTH with its Receptors, in *Current Research on Calcium Resulating Hormones*, Cooper, C., Ed., Univ. of Texas Press, Austin, 31-41.
41. Frelinger, L. and Zull, J. E., 1986. The Role of Methionine Residues in the Structure and Function of PTH. *Arch. Biochem. Biophys.*, 244, 641-649.
42. Pillai, S. and Zull, J. E., 1986. Production of Active Fragments of Parathyroid Hormone by Isolated Kupffer Cells. *J. Biol. Chem.*, 261, 14919-14923.
43. Smith, L. S., Jentoft, J., and Zull, J. R., 1987. A Proton NMR Study of the Biologically Active N-Terminal Fragment of Parathyroid Hormone. *Arch. Biochem. Biophys.*, 253, 81-86.
44. Smith, L., Jentoft, J., and Zull, J. E., 1987. Role of Lys-13 in Structure and Function of Parathyroid Hormone. *Mol. & Cell. Endo.*, 51, 267-271.
45. Chuang, J., Yike, I., Laethem, R., and Zull, J. E., 1987. Identification and Purification of a Kidney Membrane Protein which Specifically Binds the Amino Terminal Domain of PTH, *J. Biol. Chem.*, 262, 10760-10766.
46. Pitts, T. O., Puschett, J. B., Rose, M. E., and Zull, J. E., 1987. Effects of Selective Oxidation of I-31 Bovine Parathyroid Hormone on its Renal Actions. *Mineral and Electrolyte Metabolism*, 15, 267-275.
47. Zull, J. E., 1990, New Method for Detection of PTH Receptors, in *New Actions of Parathyroid Hormone*, Fujita, S. & Massery, S., Eds., Plenum, 1990. pp 41-49.
48. Zull, J. E. and Laethem, R.,(1988) The β -subunit of the Mitochondrial ATPase Binds Parathyroid Hormone, *Mol. Cell. Endocrinol.*, 59, 155-159.
49. Massery, S., Schaeffer, R. M., Teschuer, M., Roeder, M., and Zull, J. E., 1989, Parathyroid Hormone and Elastase Release From Human Polynuclear Leukocytes, in *New Actions of Parathyroid Hormone*, Fujita, S., and Massery, S., Eds., Plenum, 1990.
50. Zull, Chuang, J., and Smith, S., (1988), Examination of PTH Antisera for Antibodies against the Receptor for this Hormone, *Mol. Cell Endo.* 67, 139-147.
51. Massry, S., Zull, J.e., et al (1988), Effect of PTH on Elastase Release from Human Polymorphonuclear Leukocytes, *Kid. International.*, 36, 883-890.

52. Zull, J.E., and Smith, S., (1990), Genetic Code Redundancy and Retention of Structural Information in both DNA Strands?, Trends in Biochemical Sciences, 15, 257-261.
53. Zull, J.E., Smith, S., and Wiltshire, R., (1989), Effect of Oxidation of Methionine and deletion of amino terminal residues on the folding of parathyroid hormone, J. Biol. Chem., 265, 5671-5676.
54. Laethem, R., and Zull, J.E., (1990), Binding Site for Parathyroid Hormone on the β -Subunit of the Mitochondrial ATPase, Arch. Biochem. Biophys., 282, 161-169.
55. Carome, E.F., Coghlan, G.A., Sukenik, C.N., and Zull, J.E., (1993), Fiberoptic evanescent wave sensing of antigen-antibody binding, Sensors and Actuators B., 13-14, 732-733.
56. Lee, Y.W., Reed-Mundell, J., Zull, J.E., and Sukenik, C.N., (1993) Electrophilic Siloxane-Based Self-Assembled Monolayers for Thiol-Mediated Anchoring of Peptides and Proteins, Langmuir, 9, 3009-3014.
57. Zull, J.E., Lee, Y.W., Reed-Mundell, J., Vezenov, D., Zaits, N., Anderson, J., and Sukenik, C., (1994), Problems and Approaches to Attaching Proteins to Surfaces for Biosensor Applications, J. Indust. Microbiology, 13, 137-143.
58. Z.H. Jin, R.B. Savinell, Vezenov, D., Sukenik, C., and Zull, J.E. (1994), A.C. Impedence Characterization of the Structure of Alkylsiloxane Self-Assembled Monolayers on Silicon, Langmuir, 10, 2662-2671.
59. Zull, J.E., Taylor, R., Michaels, G., and Rushforth, N.B., (1994) Internal Antisense in coding Sequences of Nucleic Acids: are there Implications for Protein Folding and Evolution? Nucleic Acids Research, 22, 3373-3380.
60. Tong, Y., Yu, Lei, and Zull, J.E., , (1996), Functional Expression and Signaling Properties of Cloned Human Parathyroid Hormone Receptor in Xenopus Oocytes: Evidence for Novel Signaling Pathways J. Biol. Chem., 271, 8183-8191.
61. Zull, J.E., (1998), The Brain, The Body, Learning and Teaching, National Teaching and Learning Forum, 7, No. 3, 1-5.
62. Zull, J.E., (book due March, 2002) *Using our Heads; Helping people learn by understanding the brain.*

GRANTS AWARDED:

22 grants for \$3,025,000, direct costs (\$4,567,750 total)*.

<u>Date</u>	<u>Years</u>	<u>Source</u>	<u>Role</u>	<u>Type</u>	<u>Direct Costs</u>
1967	2	OSW	PI	Resaech	75,000
1967	3	NIH	Co-PI	Prog. Proj.	300,000
1970	3	NIH	Co-Pi	Prog. Proj.	500,000
1970	3	NIH	PI	Research.	100,000
1973	2	NSF	PI	Research	55,000
1974	1	OH Kidney	PI	Research.	15,000
1975	3	NIH	PI	Research.	200,000
1975	3	NIH	Co-Pi	Research.	100,000
1975	3	NIH	PI	Research.	75,000
1978	5	NIH	Co-Pi	Research.	250,000
1979	2	OH Kidney	PI	Research.	30,000
1980	1	NSF	PI	Equipment.	40,000
1981	3	NIH	PI	Research.	200,000
1982	1	NSF	PI	Equipment	25,000
1984	3	NIH	PI	Research	150,000
1984	3	NIH	PI	Research	300,000
1987	3	NIH	PI	Research	420,000
1988	3	NIH	PI	Research	190,000
1989	1	EBTC	PI	Research	100,000
1990	1	EBTC	PI	Research	75,000
1991	2	NIH	PI	Research.	195,000

* Indirect costs at CWRU are 50% of total direct costs.

GRADUATE STUDENTS:

Name	Degree	Year	Position
Walker, Francis	M.S.	1970	Chem. Abstracts
Sweet, Clyde	Ph.D.	1971	Eastman Kodak
Repke, D.W.	Ph.D.	1971	Milwaukee County Hospital
Sogor, B. V. D.	Ph.D.	1973	Diamond Shamrock
Wong, Nicholas	Ph.D.	1974	Ontario Provincial Hosp.
Malbon, Craig	Ph.D.	1977	Prof. of Pharmacology SUNY Stonybrook
Moore, Alex	M.S.	1979	Physician
Heath, Ellen	Ph.D.	1981	Senior Research Assoc., Dept of Cell Biology, Washington University, St. Louis
Botti, R. B.	M.S.	1981	Cardiologist, University Hospitals, Cleveland
Frelinger, Larry	Ph.D.	1984	Research Scientist, CETUS
Laethem, Ronald	Ph.D.	1989	Research Scientist, Bouroughs Welcome, North Carolina
Tong, Y.	Ph.D.	1996	Post-doctoral fellow, Dept. of Medical Genetics, Indiana U. School of Medicine, Indianapolis

POSTDOCTORAL FELLOWS and OTHER EMPLOYEES:

Adam, Hugh; Ph.D., Univ. of Leeds; 1969-71

Sood, Chander K., Ph.D., Bombay University; 1972-1974

Chuang, J., M.S., Taiwan University; 1975-1985

Lev, N., M.S., Harvard University; 1980-81

Yike, I., Ph.D., University of Warsaw; 1986-87

Reese, J., Ph.D., Yale University; 1987-89

Porter, D., Ph.D., Univ. Cal. at Berkley; 1988-90

Holderbaum, D., Ph.D., Cleveland State Univ.; 1989-92

Reed-Mundell, J, Ph.D., Case Western Reserve Univ.; 1990-93

INVITED LECTURES, WORKSHOPS, SEMINARS:

- 1968 Symposium on Membranes and Transport, Sponsored by OSW, Albert Einstein School of Medicine
- 1969 Symposium on Membranes and Transport, Sponsored by NSF, CWRU
- 1970 Research Seminar, University of North Carolina, Chapel Hill
- 1972 Research Seminar, Washington Univ. (St. Louis), Dept. of Physiology
- 1973 Symposium on Biological Membrane, NIH, Bethesda
- 1974 Research Seminar, Neufield Center at Oxford University, England
- 1975 Research Seminar, Biocentrum, Basel, Switzerland. Research Seminar, Dept. of Biochem., Saclay Inst. of Nuclear Res. France. Research Seminar, Hospital, St. Anotine, Paris, France
- 1976 Research Seminar, Max Planck Inst. for Biophysics, Frankfurt, Germany. Research Seminar, Dept. of Pharmacology, Biomedicum, Upsalla, Sweden. Research Seminar, Welsh Nat. School of Med., Dept. of Biochem., Wales
- 1977 Workshop Session on Parathyroid Hormone Receptors, Mayo Clinic
Conference on Calcium Metabolism
- 1979 Research Seminar, Univ. of Wisconsin, Department of Biochemistry
- 1982 Research Seminar, Endocrine Unit, Mass. General Hospital, Boston. Research Seminar, Dept. of Pharm. and Tox., Harvard Schl of Public Health. Chairman, Parathyroid Hormone Session, Ann. Mtg. of Amer. Soc. Bone and Mineral Res.
- 1986 Research Seminar, Merck, Sharpe, & Dohme Labs, Philadelphia Research Seminar, Dept. of Biochem., University of Washington - Seattle
- 1987 Research Seminar, Dept. of Nephrology, Univ. S. Calif. Los Angeles. Research Seminar, Endocrine Unit, Veterans Adm. Hospital San Francisco. Symposium on New Actions of Parathyroid Hormone, Kobe, Japan
- 1988 Research Seminar, Miami Valley Laboratories of Proctor and Gamble, Cincinnati
- 1989 Research Seminar, Dept. of Biochemistry, Univ. of Washington, Seattle
- 1993 Symposium on Biosensors, Soc. of Industrial Microbiology and Canadian Soc. of Microbiology, Toronto, Canada
- 1997 Lilly Conference, Miami University of Ohio, "The Biology of Human Learning and what it Means for Higher Education."
- 1998 Lilly South, University of Georgia, Keynote Address: "Biology of Human Learning."
- 1998 POD Conference, "Workshop on Biology of Human Learning."
- 1999 Berklee College of Music; workshop on Biology and Teaching
Belmont University; Vaughan Science Lecture- Can Brain Science Improve Teaching?

Belmont University; three workshops on Biology and Teaching; Student lecture on human cloning.

Xavier University; All day workshop on Brain and Teaching

Tufts University; Plenary Lecture for Teaching and Learning Program; two workshops on brain and teaching.

- 2000 Macon State College; Workshops on the brain and teaching- Spring 2000
Sabbatical at Graduate School of Education, Harvard University;
Presentation of two seminars on Brain and Education
- 2001 Macon State College: Return visit for additional workshops-Spring

GRANT REVIEWS AND SITE VISITS:

1. Ad. Hoc. Review for NSF grants (1979, 1981, 1982).
2. Site visits for NIH grants:
 - a. Albert Einstein School of Medicine-Research Grant (1979).
 - b. Mass. General/Harvard Endocrine Unit-Program Project (1983).

REVIEWER FOR:

J. Biol. Chem., Biochemistry, J. Bone and Min. Res., Endocrinology, Arch. Biochem. Biophys., Biochem. Biophys Acta, Science, Nature, others.

TEACHING:

1966-67	Quantitative Analysis: undergrad; 100 students. Biochemical Mechanisms; grad; 20 students
1968-88	Cell Biology Lab; undergrad; 40-50 students
1970-83	Cellular Physiology; grad; 10-20 students
1974	Molecular Anatomy of the Cell: grad; 30 students
1977-88	Chemical Biology; undergrad; 100-150 students.
1989-94	Mol. Concepts for Biology; undergrad; 100 students
1989-95	Mol. Concepts II (100 students)
1994-Present	Biology in Society (30 students)

UNIVERSITY SERVICE:

1969-70	Chairman, Curriculum Committee, Case Assembly
1971-73	Graduate Affairs Committee Chairman, Dept. of Biology
1972-73	Case Assembly representative (Dept. of Biology)
1975-77	Graduate Chairman, Dept. of Biology
1975	Chairman of Ad Hoc Committee on Coordination of Biological Sciences at CWRU (appointed by Dean Harvy Willard) This committee developed cooperative activities between the Medical School and the Biology Department. The widely successful "Frontiers in Biological Sciences " seminar series is one of the lasting results of this committee's activities.
1979-82	Promotion and Tenure Committee (Math and Nat. Sci.)
1980	Faculty Senate Executive Committee
1981	Chairman, Provosts Strategic Planning Committee
1982-85	Executive Committee of Math and Natural Science
1986	Promotion and Tenure Committee (Presidents Committee)

1986-89 Promotion and Tenure Committee (Math. and Nat. Sci.)
 1987 Chairman, Strategic Planning Committee for Dean of the Colleges
 1988 Chairman, Promotion and Tenure Committee (M and NS)
 1989-92 Executive Committee (Math and Nat. Sci.)
 1990-93 Faculty Senate Representative (Math and Nat. Sci.)
 1992 Chairman, Faculty Senate Nominating Committee
 Chairman of ad hoc committee on formation of College of Arts and Sciences
 Chairman, Executive Committee of Math. and Nat. Sci.
 Chairman, Joint Executive Committee of Math and Nat. Sci, and Humanities, Arts, and Social Sciences
 1993 Chairman, Executive Committee of Faculty of Arts and Sciences
 1994 Faculty Senate Executive Committee
 1995-present Director of University Center for Innovation in Teaching and Education; offers over 70 seminars on teaching for CWRU faculty each year with a total attendance exceeding 1500; administers grants for teaching projects which exceed \$100,000 each year.