Appendix Table 5-67 U.S. university patent awards, by technology area: 1996–2014

Technology area	1996 – 2014	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
All university patents	70,516	2,293	2,669	3,458	3,694	3,382	3,443	3,467	3,449	3,240	2,873	3,517	3,214	3,027	3,252	4,503	4,395	5,027	5,623	5,990
Biotechnology	12,850	427	647	864	946	777	830	734	637	594	500	643	587	526	566	701	650	676	740	804
Pharmaceuticals	10,677	365	462	606	671	623	590	598	538	456	391	467	424	392	420	610	556	726	822	959
Measurement	5,522	183	183	198	227	225	228	229	278	302	266	298	292	305	287	381	414	403	433	389
Medical technology	5,512	173	185	245	289	236	228	251	308	239	198	221	194	214	209	340	348	451	553	630
Organic fine chemistry	5,010	185	206	236	222	237	227	265	229	195	186	259	222	217	243	327	292	395	408	457
Computer technology	3,764	83	89	130	112	99	120	120	119	139	124	188	186	181	198	312	324	395	421	427
Analysis of biological materials	2,871	71	95	160	146	126	154	139	132	124	107	141	124	145	143	232	209	197	213	213
Semiconductors	2,737	56	67	79	84	84	110	121	147	120	119	130	133	120	149	214	224	228	270	281
Optics	2,648	71	87	105	120	136	111	147	144	172	156	166	164	159	142	162	119	159	157	172
Electrical machinery, apparatus, energy	2,200	80	76	86	102	80	83	90	106	111	106	140	96	88	100	160	138	144	191	222
Chemical engineering	1,633	64	60	79	89	79	76	68	87	86	81	75	75	68	68	109	101	102	131	136
Basic materials chemistry	1,466	56	65	53	60	60	70	48	66	55	57	68	50	57	63	90	107	120	168	154
Surface technology, coating	1,386	37	40	41	55	67	60	60	65	56	54	58	65	58	63	110	120	143	129	107

Technology area	1996 – 2014	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Macromolecular chemistry, polymers	1,376	73	52	59	79	62	70	77	88	54	47	67	63	41	52	93	90	80	130	99
Materials, metallurgy	1,181	62	58	70	60	61	63	69	64	53	50	55	55	38	65	71	63	70	76	78
Telecommunications	1,023	23	18	33	28	26	35	50	39	56	47	59	55	55	67	80	82	102	77	89
Other special machines	969	26	40	59	54	52	61	63	62	47	45	40	43	32	40	62	53	61	67	62
Audio-visual technology	847	20	27	54	48	32	48	35	43	40	38	52	35	30	42	35	39	74	87	66
Environmental technology	804	38	31	40	36	42	36	49	34	39	27	42	35	25	45	41	53	55	60	76
Basic communication processes	766	20	6	23	20	22	15	21	26	47	49	50	46	63	57	52	68	63	60	58
Digital communication	694	15	9	13	10	23	26	23	22	30	30	47	43	40	39	45	62	78	48	90
Food chemistry	634	43	38	47	51	47	33	28	27	19	20	39	29	19	28	32	26	35	35	39
Engines, pumps, turbines	569	13	23	17	26	22	27	27	34	26	25	33	26	33	34	38	35	38	45	47
Control	538	13	10	19	15	22	18	23	23	19	20	31	34	22	28	39	42	45	58	57
Machine tools	402	20	19	22	27	16	18	19	22	22	14	23	19	10	19	24	25	24	28	30
Textile and paper machines	351	11	9	21	16	15	13	14	11	19	14	26	22	15	14	24	27	22	31	27
Civil engineering	332	9	16	16	20	21	15	18	13	20	17	8	12	13	12	16	17	23	34	31
Transport	326	11	6	9	20	17	17	17	15	19	18	17	15	10	10	24	25	23	27	27
Mechanical elements	321	11	10	18	16	20	18	17	17	19	14	15	17	9	8	17	21	22	27	26

Technology area	1996 – 2014	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Micro-structural and nano-technology	253	3	4	7	5	13	10	16	18	24	14	16	11	11	9	10	8	9	16	50
Other consumer goods	198	8	9	13	11	10	5	7	6	8	6	6	11	4	7	11	16	17	24	20
Thermal processes and apparatus	189	10	12	13	12	7	11	10	14	13	10	11	11	7	7	7	8	5	11	13
Handling	148	6	4	11	7	4	6	7	6	5	6	7	6	6	2	11	6	16	14	17
Furniture, games	140	5	4	5	5	9	4	5	5	9	4	5	7	4	4	9	12	12	16	18
IT methods for management	138	1	2	8	4	6	6	2	3	2	5	4	6	6	6	12	14	14	15	23
Unclassified	40	0	0	1	3	3	1	1	1	0	9	11	3	1	1	1	2	1	2	0

NOTES: IT = information technology.

Data include institutions affiliated with academic institutions, such as university and alumni organizations, foundations, and university associations. Universities vary in how patents are assigned (e.g., to boards of regents, individual campuses, or entities with or without affiliation with a university). Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies international patent classification (IPC) codes under 35 technical fields. IPC reformed codes, which take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification, were used to prepare these data. Fractional counts of patents were assigned to each IPC code on patents to assign the proper weight of a patent to the corresponding IPC codes and their associated technical fields under the classification. For instance, a patent that is classified under five different IPC codes will see each of its IPC code receive a 0.2 count of the patent, and these counts are then assigned to the corresponding technical field according to the classification. To follow up on the example, if four out of the five codes are linked to transport and the last code is linked to civil engineering, 0.8 (i.e., 4 x 0.2) patents were assigned to the technical field of transport, and 0.2 (i.e., 1 x 0.2) patents were assigned to the technical field of civil engineering. Patents were also fractionally allocated among regions/countries/economies, based on the proportion of residences of all named inventors. As such, data across technical fields sum up to the total number of granted academic patents in the United States.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics; SRI International; Science-Metrix; LexisNexis and U.S. Patent and Trademark Office patent data; Elsevier, Scopus abstract and citation database (www.scopus.com).

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