

TABLE S8-2

U.S. university utility patent awards, by technology area: 1998–2018

(Number)

Technology area	1998–2018	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
All university patents	92,311	3,432	3,628	3,308	3,438	3,496	3,497	3,261	2,876	3,518	3,213	3,022	3,264	4,514	4,413	5,040	5,619	6,081	6,177	6,628	7,002	6,885
Biotechnology	15,664	821	891	722	791	709	634	576	485	669	603	553	600	740	686	750	790	882	850	952	983	977
Pharmaceuticals	13,343	599	656	602	571	578	509	439	368	455	394	365	378	557	521	660	726	877	942	1,005	1,099	1,040
Medical technology	8,071	237	278	225	227	238	306	235	202	224	191	210	219	351	377	463	565	632	655	696	763	779
Measurement	6,675	189	224	213	225	219	257	292	247	283	267	282	283	347	376	389	404	393	417	439	456	473
Organic fine chemistry	6,350	242	231	245	250	296	250	206	201	250	214	190	220	308	253	355	376	418	427	472	480	464
Computer technology	4,507	122	97	90	111	115	115	132	110	164	163	159	172	254	258	304	333	356	345	383	363	361
Analysis of biological materials	4,501	181	160	129	163	145	144	140	124	148	155	182	176	273	257	250	301	308	288	298	350	331
Electrical machinery, apparatus, energy	3,108	88	99	80	80	89	100	113	99	123	99	93	98	166	132	156	178	218	234	265	301	298
Optics	3,034	101	104	128	102	142	136	151	145	151	140	134	134	155	126	167	156	176	182	175	175	153
Semiconductors	2,987	69	77	80	99	108	139	98	98	100	95	79	111	161	164	169	202	225	227	240	236	208
Micro-structural and nano-technology	2,279	38	34	46	49	65	79	92	88	109	110	105	105	141	158	145	187	183	184	143	123	93
Chemical engineering	2,233	78	86	78	76	71	97	87	81	80	71	69	69	111	99	119	137	139	157	167	189	172
Macromolecular chemistry, polymers	1,802	59	77	69	73	80	89	59	51	67	59	40	56	92	80	81	117	110	116	133	150	144
Basic materials chemistry	1,763	55	67	61	71	52	70	59	54	60	44	47	52	73	84	96	138	118	125	141	135	162
Other special machines	1,549	64	62	65	73	82	79	57	55	56	58	46	56	75	72	77	89	86	86	99	100	112
Materials, metallurgy	1,526	67	60	59	59	63	61	51	48	54	53	40	62	74	75	82	99	85	103	112	114	106
Digital communication	1,436	14	11	25	27	27	23	33	35	63	61	55	61	87	115	119	91	127	119	112	115	115
Surface technology, coating	1,325	38	51	62	57	57	58	50	45	40	48	43	36	66	61	74	79	79	82	87	103	108
Telecommunications	1,259	33	29	24	37	50	41	59	42	56	54	49	55	62	62	84	70	78	85	86	96	106
Audio-visual technology	1,073	50	42	32	44	38	41	38	35	52	39	36	37	44	40	67	70	55	74	77	88	74
Environmental technology	961	41	37	41	36	46	35	38	25	43	33	25	42	41	46	44	58	72	59	56	77	65
Basic communication processes	916	23	20	20	14	20	24	42	47	41	48	51	53	49	64	51	61	57	54	63	53	61
Engines, pumps, turbines	751	20	26	23	27	25	31	23	24	29	27	30	34	42	37	44	42	49	43	63	49	60
Control	686	24	18	20	19	23	24	20	19	31	24	14	21	33	31	37	49	47	41	54	69	68
Food chemistry	648	44	49	43	33	28	27	19	17	26	18	11	19	26	21	35	35	36	40	41	39	42
Transport	476	7	22	16	18	16	14	21	19	19	17	14	10	25	28	24	34	33	33	29	30	48
Civil engineering	441	17	20	22	14	19	15	20	18	9	15	10	12	17	23	19	29	27	32	35	31	37
Mechanical elements	431	15	16	19	18	19	17	19	14	18	18	11	9	17	20	23	30	29	26	26	39	30
Textile and paper machines	425	20	15	13	14	20	14	21	12	19	19	14	12	20	21	21	33	25	23	33	25	30
Machine tools	413	21	24	13	16	19	19	22	13	18	19	14	19	18	23	21	24	30	20	18	22	18
IT methods for management	301	8	6	6	6	2	5	3	10	14	12	15	13	21	26	22	26	34	15	18	18	20
Thermal processes and apparatus	276	13	11	7	11	10	15	14	10	11	10	8	8	12	10	9	17	19	15	19	19	28
Other consumer goods	272	12	13	11	6	9	7	8	5	5	13	4	6	12	15	16	18	17	18	26	30	20
Handling	217	9	7	3	5	7	5	5	5	4	6	4	1	9	8	14	16	18	20	21	25	26
Furniture, games	178	6	5	7	6	4	6	7	5	5	7	4	5	6	6	15	12	14	11	16	17	17

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Technology area	1998–2018	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unclassified	433	5	6	9	9	5	9	12	20	19	8	16	17	29	38	36	27	33	27	29	41	38

IT = information technology.

Note(s)

Patents are allocated according to patent inventorship information. Data include institutions affiliated with academic institutions, such as university and alumni organizations, foundations, university associations, and affiliated hospitals. Universities vary in how patents are assigned (e.g., to boards of regents, individual campuses, or entities with or without affiliation with the 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 take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. For instance, a patent that is classified under five different technological fields will see each of its technological fields receive a 0.2 count of the patent, so that the patent accounts for a count of 1.0 across all technological fields. Patents were also fractionally allocated among regions, countries, or economies based on the proportion of residences of all assignees. As such, data across technical fields sum up to the total number of granted academic patents in the United States. Data across technical fields also sum up to the total number of patents granted by the U.S. Patent and Trademark Office.

Source(s)

Science-Matrix; PatentsView, USPTO, accessed June 2019.

Science and Engineering Indicators