

West Virginia

| Year | Seed | Opponent | Seed | Score | Opp Score | W | L | OT | Round |
|------|------|----------------------------|------|-------|-----------|----|----|----|-----------------------|
| 1955 | | La Salle | | 61 | 95 | 0 | 1 | 0 | Round of 32 |
| 1956 | | Dartmouth | | 59 | 61 | 0 | 2 | 1 | Round of 32 |
| 1957 | | Canisius | | 56 | 64 | 0 | 3 | 0 | Round of 32 |
| 1958 | | Manhattan | | 84 | 89 | 0 | 4 | 0 | Round of 32 |
| 1959 | | Dartmouth | | 82 | 68 | 1 | 4 | 0 | Round of 32 |
| | | St. Joseph's, Pennsylvania | | 95 | 92 | 2 | 4 | 0 | Sweet Sixteen |
| | | Boston | | 86 | 82 | 3 | 4 | 0 | Elite Eight |
| | | Louisville | | 94 | 79 | 4 | 4 | 0 | National Semifinals |
| | | California | | 70 | 71 | 4 | 5 | 0 | National Championship |
| 1960 | | Navy | | 94 | 86 | 5 | 5 | 0 | Round of 32 |
| | | New York | | 81 | 82 | 5 | 6 | 1 | Sweet Sixteen |
| | | St. Joseph's, Pennsylvania | 106 | 100 | 100 | 6 | 6 | 0 | Regional Third Place |
| 1962 | | Villanova | | 75 | 90 | 6 | 7 | 0 | Round of 32 |
| 1963 | | Connecticut | | 77 | 71 | 7 | 7 | 0 | Round of 32 |
| | | St. Joseph's, Pennsylvania | | 88 | 97 | 7 | 8 | 0 | Sweet Sixteen |
| | | New York | | 83 | 73 | 8 | 8 | 0 | Regional Third Place |
| 1965 | | Providence | | 67 | 91 | 8 | 9 | 0 | Round of 32 |
| 1967 | | Princeton | | 57 | 68 | 8 | 10 | 0 | Round of 32 |
| 1982 | 5 | North Carolina A&T | 12 | 102 | 72 | 9 | 10 | 0 | Round of 64 |
| | 5 | Fresno State | 4 | 46 | 50 | 9 | 11 | 0 | Round of 32 |
| 1983 | 7 | James Madison | 10 | 50 | 57 | 9 | 12 | 0 | Round of 64 |
| 1984 | 11 | Oregon State | 6 | 64 | 62 | 10 | 12 | 0 | Round of 64 |
| | 11 | Maryland | 3 | 77 | 102 | 10 | 13 | 0 | Round of 32 |
| 1986 | 9 | Old Dominion | 8 | 64 | 72 | 10 | 14 | 0 | Round of 64 |
| 1987 | 7 | Western Kentucky | 10 | 62 | 64 | 10 | 15 | 0 | Round of 64 |
| 1989 | 7 | Tennessee | 10 | 84 | 68 | 11 | 15 | 0 | Round of 64 |
| | 7 | Duke | 2 | 63 | 70 | 11 | 16 | 0 | Round of 32 |
| 1992 | 12 | Missouri | 5 | 78 | 89 | 11 | 17 | 0 | Round of 64 |
| 1998 | 10 | Temple | 7 | 82 | 52 | 12 | 17 | 0 | Round of 64 |
| | 10 | Cincinnati | 2 | 75 | 74 | 13 | 17 | 0 | Round of 32 |
| | 10 | Utah | 3 | 62 | 65 | 13 | 18 | 0 | Sweet Sixteen |
| 2005 | 7 | Creighton | 10 | 63 | 61 | 14 | 18 | 0 | Round of 64 |
| | 7 | Wake Forest | 2 | 111 | 105 | 15 | 18 | 2 | Round of 32 |

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|------|------|--------------------|------|-------|-----------|----|----|----|---------------------|
| 2005 | 7 | Texas Tech | 6 | 65 | 60 | 16 | 18 | 0 | Sweet Sixteen |
| | 7 | Louisville | 4 | 85 | 93 | 16 | 19 | 1 | Elite Eight |
| 2006 | 6 | Southern Illinois | 11 | 64 | 46 | 17 | 19 | 0 | Round of 64 |
| | 6 | Northwestern State | 14 | 67 | 54 | 18 | 19 | 0 | Round of 32 |
| | 6 | Texas | 2 | 71 | 74 | 18 | 20 | 0 | Sweet Sixteen |
| 2008 | 7 | Arizona | 10 | 75 | 65 | 19 | 20 | 0 | Round of 64 |
| | 7 | Duke | 2 | 73 | 67 | 20 | 20 | 0 | Round of 32 |
| | 7 | Xavier, Ohio | 3 | 75 | 79 | 20 | 21 | 1 | Sweet Sixteen |
| 2009 | 6 | Dayton | 11 | 60 | 68 | 20 | 22 | 0 | Round of 64 |
| 2010 | 2 | Morgan State | 15 | 77 | 50 | 21 | 22 | 0 | Round of 64 |
| | 2 | Missouri | 10 | 68 | 59 | 22 | 22 | 0 | Round of 32 |
| | 2 | Washington | 11 | 69 | 56 | 23 | 22 | 0 | Sweet Sixteen |
| | 2 | Kentucky | 1 | 73 | 66 | 24 | 22 | 0 | Elite Eight |
| | 2 | Duke | 1 | 57 | 78 | 24 | 23 | 0 | National Semifinals |
| 2011 | 5 | Clemson | 12 | 84 | 76 | 25 | 23 | 0 | Round of 64 |
| | 5 | Kentucky | 4 | 63 | 71 | 25 | 24 | 0 | Round of 32 |
| 2012 | 10 | Gonzaga | 7 | 54 | 77 | 25 | 25 | 0 | Round of 64 |
| 2015 | 5 | Buffalo | 12 | 68 | 62 | 26 | 25 | 0 | Round of 64 |
| | 5 | Maryland | 4 | 69 | 59 | 27 | 25 | 0 | Round of 32 |
| | 5 | Kentucky | 1 | 39 | 78 | 27 | 26 | 0 | Sweet Sixteen |
| 2016 | 3 | Stephen F. Austin | 14 | 56 | 70 | 27 | 27 | 0 | Round of 64 |
| 2017 | 4 | Bucknell | 13 | 86 | 80 | 28 | 27 | 0 | Round of 64 |
| | 4 | Notre Dame | 5 | 83 | 71 | 29 | 27 | 0 | Round of 32 |
| | 4 | Gonzaga | 1 | 58 | 61 | 29 | 28 | 0 | Sweet Sixteen |
| 2018 | 5 | Murray State | 12 | 85 | 68 | 30 | 28 | 0 | Round of 64 |
| | 5 | Marshall | 13 | 94 | 71 | 31 | 28 | 0 | Round of 32 |
| | 5 | Villanova | 1 | 78 | 90 | 31 | 29 | 0 | Sweet Sixteen |